DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS FOR 1991

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

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DEPARTMENT OF TRANSPORTATION AND RELATED AGENCIES APPROPRIATIONS FOR 1991

THURSDAY, FEBRUARY 22, 1990.

NATIONAL TRANSPORTATION SAFETY BOARD

WITNESSES

JAMES L. KOLSTAD, CHAIRMAN
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Mr. LEHMAN. The subcommittee will come to order.

Today we will receive testimony on the fiscal year 1991 budget request for the National Transportation Safety Board. Our principal witness today is the Chairman, James Kolstad.

Mr. Kolstad, we will be pleased to hear your statement at this time. You may read it, or if you would prefer to summarize it, we shall insert your entire statement in the record.

OPENING STATEMENT

Mr. KOLSTAD. Thank you, Mr. Chairman, Mr. Coughlin. I do have a brief statement that is very short, if I could just read it, sir.

I am pleased to appear before you today to represent the National Transportation Safety Board. At the outset, I would like to thank you and the other Members of this Committee for your continued interest and support of Safety Board activities.

With me this morning are members of the senior management staff: Lloyd Miller to my right, who is Acting Managing Director; Dr. Bernard Loeb, to his right, who is Acting Director of the Bureau of Accident Investigation; Mr. Leslie Kampschror, who is Director of the Bureau of Technology; Mr. Herbert Banks, Director of the Bureau of Field Operations at the far end; Mr. Barry Sweedler, Director of the Bureau of Safety Programs; and Mr. Michael Levins, Director of the Bureau of Administration to my far right.

BUDGET REQUEST

The Board is requesting $30,940,000 for fiscal year 1991, which is $3,700,000 more than our 1990 post-sequestered level at

$27,200,000. This additional level will help us fund the equivalent of 348 positions, or 22 more than our fiscal year 1990 level of 326.

The need for more positions has reached critical proportions. Indeed, the Safety Board has been attempting to carry out its responsibilities in an environment of more frequent major accidents, and more complex accidents, with only two new positions over more than four-and-one-half years. These two positions were added in the fiscal year 1990 budget.

INVESTIGATION WORKLOAD

Last year's investigatory work load provided an excellent example of the problem. The Safety Board launched 51 go-teams to major accidents in all modes of transportation, the highest number of launches in many years, or almost one a week. At this level of activity, it is nearly impossible to provide the time and resources necessary to train and maintain the proficiency of our investigators in dealing with increasingly complex transportation vehicles.

The unique failure of a titanium front fan disk on a United DC-10, which led to the accident at Sioux City, Iowa, and the failure of a cargo door on a United Boeing 747, which made a safe landing in Honolulu, are but two examples of the kind of accidents that required an inordinate amount of time and resources because of their complex nature.

Just last week, we dispatched a partial team to Bangalore, India to participate with the Indian Government in the investigation of an Airbus A320. This aircraft is perhaps the most technologically advanced aircraft on the market. For these reasons, Mr. Chairman, I have made the strengthening and rebuilding of the Safety Board my number one priority as its new chairman. With additional resources in fiscal year 1991 and fiscal year 1992, we can address the double mission of more investigations and more complex investigations. I believe we can also greatly improve the quality and timeliness of our reports and recommendations and improve the efficiency and the effectiveness of the Safety Board.

RESOURCES

Here is the way that we would dedicate these resources. Nine of these positions will be dedicated to enhancing the staffing depth of several of our critical technical specialties, like those involving cockpit voice recorders, digital flight data recorders and structural engineering. An additional nine positions will be allocated to enhance our investigator staffing. Five of these positions are required for the Board's major aviation, railroad and highway programs. These additional positions also will improve the Safety Board's ability to respond to major foreign accidents. The foreign accidents typically involve U.S. airlines and/or U.S. manufactured aircraft, and are often significant because of safety issues which could affect the safety of the U.S. fleet and American passengers.

Four of these investigators will be allocated to enhance our investigation of non-catastrophic general aviation and surface accidents, which will also result in significant system-wide safety improvements.

AVIATION APPEALS

Finally, four positions will be allocated to our aviation appeals program to begin to reduce the current processing time of our appeal cases from almost 20 months to a more acceptable 12 months. As a result of an increase of enforcement actions taken by the FAA, appeal of these actions to the Safety Board has doubled, resulting in an unacceptable backlog of cases.

It is expected that incoming cases will reach 1500 by fiscal year 1991. This not only poses a threat to the FAA's enforcement efforts, but it also creates a serious potential safety hazard since the action taken against a pilot is postponed until the final disposition of the case.

I believe the Safety Board plays a major role in our transportation system. With the support of this Committee, Mr. Chairman, I am confident we will be able to improve on our goal of providing independent, efficient and effective investigations and achieve substantial safety improvements with a minimal burden on the American taxpayer.

That concludes my formal statement, sir. I will be more than happy to respond to your questions.

[The prepared statement follows:]

Mr. Chairman, I am pleased to be here today to represent the National Transportation Safety Board and to discuss the Safety Board's fiscal year 1991 appropriations request.

Before I begin a review of the past year's activities, I would like to acknowledge the National Transportation Safety Board's senior management staff seated with me and to commend each of them for their accomplishments during a difficult past year. On behalf of my colleagues and my staff, I want to thank each of you and the other Members of this Committee for your continued interest and support in the Safety Board's activities.

Aviation

Aviation Statistics

While the total accident rates for U.S. air carriers and commuters declined in 1989, the fatal accident rates rose. The actual number of fatal accidents for air carriers was the highest since 1968.

Unfortunately, last year aviation accidents were also fatal to two Members of Congress -- Congressman Mickey Leland on August 7, in Ethiopia, and Congressman Larkin Smith on August 13, in Janice, Mississippi. In addition, the Safety Board lost a Board Member, Joe Nall, in an airplane crash in Venezuela on November 27, 1989. This marked the first time in the Safety Board's history that a Board Member has been fatally injured in a transportation accident.

During 1989 the major U.S. scheduled airlines suffered 24 accidents, of which eight involved 131 fatalities. Of major tragedy, of course, was the July crash of the United Airlines DC-10 in Sioux City, Iowa killing 111 persons. The charter airlines also suffered a large number of fatalities. There were four accidents, three of them fatal, resulting in 147 fatalities. All but three of those deaths occurred in the Independent Air Boeing 707 accident in the Azores last February.

The Safety Board is confronted with a wide variety of issues resulting from our accident investigations during 1989. These issues include pilot training and experience, aging aircraft, human factors in flight operations and maintenance and inspection, air traffic control operations, the DC-10 hydraulic system design, and Federal Aviation Administration surveillance and oversight. Another issue that continues to concern us, in all modes of transportation, is the use of drugs and alcohol.

Pilot Training and Experience

In the last three years, the Safety Board has seen wide variations in crew performance. We have seen two flightcrews bring airplanes with major structural damage down safely. We saw another crew respond to an emergency that one could not possibly train for -- an engine failure with a complete loss of hydraulic flight controls. On the other hand, we have had two, possibly three accidents, in which cockpit crews have failed to assure a proper airplane configuration before taking off.

It is distressing that in 1989 we had to talk about the need for cockpit crews to ensure that flaps and slats are extended for takeoff. I am referring to Northwest 255 in Detroit, Michigan in August 1987, and Delta 1141 one year later in Dallas.

The Safety Board has determined that the Delta and Northwest accidents were caused, in part, because of the Captain and First Officer's inadequate cockpit discipline which resulted in the flightcrews' attempt to take off without the wing flaps and slats properly configured.

More recently, last August a crew of a TWA 727 in New Orleans began the takeoff roll down the wrong runway and overran the end by 1300 feet before finally becoming airborne and striking a light control box and shearing off the tops of trees.

In September 1989, a USAir 737 came perilously close to disaster when it struck power lines 80 feet above the ground 1 1/2 miles from a runway while on approach to Kansas City. Cockpit discipline is one of the main issues in the investigation.

And more recently, of course, is USAir 5050 which, during the same month, overran a runway during a rejected takeoff attempt at LaGuardia. The aircraft came to rest with the nose wedged atop an approach light trestle and with the fuselage broken and partially submerged in deep water; two passengers died in the accident. The captain had been qualified as captain on the aircraft for two months, and the first officer for one month. The Safety Board's investigation of this accident is not complete; therefore, the relevance of the pilots' training and experience in this accident have not been determined. However, the adequacy of pilot training, FAA oversight of such training, the pairing of pilots with limited experience, and crew coordination are among the issues being examined in this accident.

On August 11, 1989, in correspondence with the FAA regarding National Aviation Safety Priorities, the Safety Board expressed concern for flightcrew training and urged the FAA to emphasize improvements in flightcrew training programs. The Safety Board has also recommended that the FAA establish minimum experience levels for paired crews and order airlines to conduct more thorough background checks on pilot applicants, including training records.

Although general aviation accidents continue to decrease, the percentage of accidents that involve pilot error as a cause or factor remains relatively constant. The FAA continues positive measures to improve pilot training and proficiency, however, the Safety Board believes that continued emphasis is needed to reduce pilot error accidents.

FAA Surveillance and Oversight

Evidence of continuing deficiencies in FAA oversight of airline operations have come to the Board's attention as a result of major accident investigations during 1989.

FAA surveillance and oversight was found to be a contributing factor in the Delta Airlines crash at Dallas in 1988. The Safety Board determined that the lack of sufficiently aggressive action by the FAA to have known deficiencies corrected by Delta and the lack of sufficient accountability within the FAA's air carrier inspection process contributed to the crash.

The issue of adequacy of FAA oversight was again raised following the crash of a sightseeing airplane in Waipio Valley, Hawaii last June. As a result of its investigation of this accident, the Safety Board issued two safety recommendations regarding sightseeing operations to the FAA. Further concern about FAA oversight was generated during our investigation of the Aloha Island Air crash in Molokai. All 20 persons on board were killed in that accident. Earlier, in 1988, the Aloha Airlines decompression focused attention on the quality of air carrier maintenance programs and the FAA's surveillance of those programs.

Finally, FAA surveillance of aircraft manufacturers is also one of the issues in the United Airlines flight 811 rapid decompression following a cargo bay door opening on a Boeing 747 just south of Honolulu in February 1989. Although the probable cause has yet to be determined, the Safety Board has issued three recommendations to the FAA regarding the design and operation of the cargo door.

Aging Aircraft

The airworthiness of the U.S. aging aircraft fleet is an issue justifying continued and emphasized attention by the airlines, airframe manufacturers, and the FAA. The average airplane of the U.S. air carrier fleet is more than 12 years old. More than 500 airplanes (Boeing 727s and McDonnell Douglas DC-9s) are more than 20 years old. Here are several examples of aging aircraft problems.

In June 1989, a United Airlines mechanic in Denver noticed a crack about five inches long extending below a lap joint just below the windows of a Boeing 727-100 airplane. The airplane had been delivered to United in 1964 and had flown more than 62,000 hours. Upon closer inspection the crack was found to be about 20 inches long, most of which was hidden by the overlapping skin of the joint. It appears that the crack initiated and progressed through fatigue through rivet holes in an area where the adhesive in the lap joint had become disbonded. Since there had been no previous indications of a problem with this particular lap joint, inspection and repair requirements had not been imposed.

Cracking was found on the fuselage of an early line number Boeing 737 in September of 1989. Investigation revealed that the visually detected cracking was part of a 35-inch long crack that was largely hidden by overlying skin of the lap joint just below the windows.

These occurrences emphasize the need for continued attention to the aging aircraft issue.

More than any other single event, the Aloha Airlines decompression focused and crystallized the attention of the industry and the regulators on the issue of aging airplanes. Most of the effort in this area has been the result of the joint industry task force led by the Air Transport Association, and the Aerospace Industries Association with the help of the FAA.

These efforts have led to the issuance of proposed rules to mandate modifications and part replacement on several models of airplanes as they approach their service life. The National Transportation Safety Board will continue to address our concerns, including the issuance of safety recommendations when appropriate.

Human Factors in Flight Operations and Maintenance and Inspection

Over the past decade, human error has been a cause or factor in 65 percent of fatal air carrier accidents and an even higher percentage of general aviation accidents. The role of human performance is also seen in air traffic control operational errors and in errors in various maintenance activities.

Improved human performance is a major concern of the aviation industry and Congress. In its July 1988 report, "Safe Skies for Tomorrow," the Congressional Office of Technology Assessment suggested that Congress direct the Federal Aviation Administration to allocate resources for human factors and establish an agency focal point. Subsequent legislation, the Aviation Safety Research Act of 1988, mandates that FAA conduct human factors investigations, including long-term research. The Safety Board has strongly supported this legislation.

In response to these developments, FAA Administrator Busey established a Human Factors Coordination Committee in September 1989 to serve as a focal point for all Agency human factors initiatives and to formulate policy recommendations to its Executive Board.

The Safety Board is greatly encouraged by the developments to date. We will continue to monitor these efforts and their effects on safety and will make appropriate recommendations to the FAA as the need arises.

Collision Avoidance -- Air and Ground

The Safety Board believes that the continuing occurrences of runway incursions and near midair collisions, with their potential for a catastrophic collision, represent two of the most serious problems facing commercial aviation operations today. While there has been a great amount of attention given to the airborne collision problem, the Safety Board believes that there has been insufficient attention given to the prevention of collisions on the airport surface during takeoff and landing operations.

During 1985 and early 1986, the Safety Board investigated 25 runway incursion incidents. We found that the incursions were the result of both controller errors and pilot deviations. A number of recommendations addressing such issues as controller coordination procedures, training, pilot-to-controller communications and airport signing were issued to FAA.

The FAA accepted many of these recommendations. However, even with the increased awareness of the problem, runway incursions continue to occur, some of which have resulted in accidents.

Most recently, on January 18, 1990, an Eastern Airlines Boeing 727 collided with a Beech 100 at Atlanta's Hartfield International Airport. Although there were no injuries on the Eastern airplane, the Beech was destroyed and the two persons aboard was killed.

The Safety Board believes the potential for similar accidents will increase as the number of operations at existing airports increase.

Air Traffic Control Operations

On February 13, 1989, an operational error resulted in the loss of standard air traffic control separation between a British Airways Boeing 747, and an American Airlines British Aerospace 146, when both airplanes passed near the Seal Beach, California VORTAC at 9,000 feet.

A special investigation of this incident conducted by the Safety Board of Coast Terminal Radar Approach Control (TRACON) identified numerous deficiencies and problems related to air traffic control operations. These deficiencies and problems included inadequate size and poor physical condition of the operational quarters, inadequate controller staffing, excessive use of overtime, improper airspace design, procedures, and training programs, and an inadequate program for quality assurance and safety oversight of the air traffic control system.

After completing it's special investigation, on May 23, 1989, the Safety Board issued 11 safety recommendations to the FAA. In November 1989, the FAA announced that four air traffic control facilities that exist within southern California, including the Coast TRACON, will be combined and relocated in San Diego.

Air traffic control, specifically controller training and human factors issues, is of major concern to the Safety Board. For example, in the January runway incursion accident in Atlanta, the Beech and the Eastern airplanes had been cleared to land by the controller. However, the local controller stated he was distracted by another Eastern airplane and thought the Beech aircraft had cleared the runway, although he did not see it do so.

Also in January, at Houston International Airport, a Continental Airlines Boeing 727 elected to go around when, on short final after having been cleared to land, he saw another Continental Boeing 727 begin to taxi off the runway.

Several years before, in 1985, one of the worst near disasters in the U.S. occurred when two Northwest DC-10s nearly collided at Minneapolis-St. Paul International Airport. The pilot of one of the DC-10s, cleared to take off, averted a collision with the other DC-10, which had been cleared to cross the runway, by rotating the airplane early.

DC-10 Hydraulic System

As a result of the Safety Board's investigation of the United Airlines DC-10 accident in Sioux City, Iowa, McDonnell Douglas has developed hydraulic system enhancements which would prevent the loss of hydraulic fluid in the empennage of the DC-10. In the unlikely event of another catastrophic engine failure, controlability of the airplane could be maintained by isolating sheared or damaged hydraulic tubes in one of the airplanes three hydraulic systems, thus preventing total hydraulic loss. This investigation is still underway, and the Safety Board will make safety recommendations as it deems them necessary.

Field Investigations

During the past year the Safety Board investigated approximately 2,167 general aviation accidents. The great majority of these accidents were handled by Safety Board investigators in ten regional offices around the Nation. The field staff also conducted 11 major accident investigations, and 200 air carrier, commuter and air taxi investigations in 1989. Although most of the investigations are not as publicly visible as those catastrophic accidents investigated by headquarters, they do have a significant impact on transportation safety.

For example, during 1989 a Piper Cub experienced an in-flight separation of the left wing near Jacksonville, Arkansas, and a Piper Tri Pacer experienced an in-flight separation of the right wing at Moose Lake, Minnesota. Internal corrosion was found in both of these investigations. In response to Safety Board recommendations, the FAA recently issued an Airworthiness Directive to require annual inspections. Twenty thousand aircraft are affected by this action.

Another Piper airplane accident investigation by the Safety Board led to additional safety recommendations to the FAA and an Airworthiness Directive requiring inspection, rigging, repairs and modification of the forward baggage compartment door on certain Piper models was issued. Approximately 4,200 aircraft were affected by this action.

Other field investigations include:

o A Piedmont Airlines Boeing 737 that experienced an inflight separation of an engine from the wing as the airplane departed O'Hare Airport, and returned safely with only one engine.

o A collision of a DC-8 and an unmanned Boeing 727 parked on the ramp at Dayton International Airport.

o A DC-9 owned by Evergreen International Airlines which made an emergency landing in Lubbock, Texas after the copilot found the pilot dead in the unpressurized cargo bay.

Foreign Accident Investigations

Because of the growing number of U.S.-manufactured and U.S.-registered airplanes operating overseas, and the Safety Board's role as the sole U.S. accredited representative at foreign accident investigations under the provisions of the International Civil Aviation Organization (ICAO), U.S. manufacturers and operators rely heavily upon the Board to facilitate their involvement in the investigation of foreign incidents and accidents. In addition to the direct safety benefits realized from foreign accident investigations, the Board's involvement provides a critical contribution both to U.S. foreign relations and to strengthening the Nation's balance of trade posture through aviation exports. Significant foreign investigations in which the Safety Board participated during 1989 were:

o On January 8, a British Midland Airways Boeing 737 crashed shortly after takeoff from London's Heathrow Airport, killing 44 persons. This investigation is ongoing.

o On February 8, an Independent Air, Inc. B-707 crashed on descent to Santa Maria Island in the Azores, Portugal. All 144 persons on board were killed.

o On February 19, a Flying Tigers B-747 struck a hill while on approach to the airport in Kuala Lumpur, Malaysia. The flight was operating as a cargo flight. All four persons aboard the airplane were killed.

In both of the preceding instances, a misunderstanding apparently involved altitude clearances in the terminal area. As a result, the Safety Board issued recommendations to the FAA concerning foreign airport operations and flightcrew training for foreign flight operations.

o On May 20, the Board assisted the government of Peru in the investigation of the accident of a U.S. operated Cessna Caravan involved in the drug eradication program in Peru.

o On June 7, a Surinam Airways DC-8 crashed near Parmaribo, Surinam, on a flight from Amsterdam, the Netherlands. Of the 184 persons onboard, 177 were killed in the accident. The airplane was operated by a United States flightcrew. The captain was not properly qualified to operate the airplane in revenue passenger transport in either the United States or in Surinam, however, the airline and government aviation regulators were not informed of this fact by the firm supplying the crew.

o On August 7, the flight carrying Congressman Mickey Leland and 13 others crashed enroute to a refugee camp in poor weather. All on board received fatal injuries.

o On September 3, a VARIG Airlines Boeing 737 crashed in the Brazilian jungle. Eleven passengers were killed in the accident.

o The Safety Board sent accredited representatives and technical specialists to investigations of the UTA DC-10 that crashed in the desert over Niger on September 19, 1989 and the Avianca Boeing 727 that crashed following takeoff from Bogota, Columbia on November 27, 1989. The Board's teams helped both investigating authorities determine that explosive devices, which had been placed onboard the airplanes, caused the accidents. Over 270 passengers and crew were killed by the saboteurs in the two accidents.

On October 21, 1989, a Honduran Boeing 727, operated by Tan Sahsa Airlines crashed while on approach to Tegucigalpa, Honduras. Of the 146 passengers and crew onboard, 135 were killed in the accident.

o On November 27, a Cave Airlines chartered sightseeing flight crashed on approach to Caracas Airport in Venezuela. The two pilots and Safety Board Member Joseph Nall received fatal injuries.

The Safety Board continues to monitor several other ongoing foreign investigations for potential safety issues affecting U.S. aviation safety. Currently, the Safety Board is involved in more than 60 active foreign cases, many of which have directly led to safety improvements in U.S. aircraft operations.

Railroad

As a result of Safety Board investigations of railroad accidents, we have found the most pressing areas of need in improving rail safety are passenger car and locomotive crashworthiness, crew fatigue, alcohol and drugs, collision avoidance, hazardous materials and the regional railroads.

In 1989, the Safety Board investigated six major railroad accidents:

o On February 2, in Helena, Montana, a collision and derailment of Montana Rail Link freight train with locomotive and hazardous materials release;

o On February 26, in Akron, Ohio, the derailment of a CSX Transportation Co. train that touched off a fire and forced a mass evacuation of people from homes and schools;

o On March 10, the collision of New York City Transit Authority trains;

o On May 12, in San Bernardino, California, the derailment of a Southern Pacific Transportation Co. freight train, followed by a pipeline rupture on May 25 at the site of the derailment;

o On July 22, in Freeland, Michigan, the derailment of a CSX transportation freight train and hazardous materials release;

o On December 12, the collision of an Amtrak commuter train and a tractor trailer truck.

Passenger Car and Locomotive Crashworthiness

Passenger car safety issues include the adequacy of seat locking mechanisms, luggage restraints, and the securement of food service appliances.

The main issue in the crashworthiness of locomotive cabs is the lack of a standard sill height which frequently results in fatal injuries when locomotives collide, even at low speeds.

Crew Fatigue

Crew fatigue and other human performance issues pertaining to train operating personnel, train dispatchers and tower operators are issues which concern the Safety Board. The Safety Board has recommended certain changes in the Hours of Service Act providing for mandatory breaks, off-duty periods and better supervision to enhance safety.

Alcohol and Drugs

Impairment from alcohol or drug use on railroads continues to be a factor in railroad accidents. The Federal Railroad Administration has advised that in 1989 there were 21 accidents and incidents involving alcohol or drug use by railroad employees in which 24 employees tested positive. The Safety Board is encouraged that during the past year, the Association of American Railroads has asked its members to inform all employees of the availability and capabilities of their employee assistance programs (EAP) on an ongoing basis. This official AAR notification, resulting from the Safety Board's study entitled, "Alcohol/Drug Use and its Impact on Railroad Safety," will ensure that all railroad employees are informed of the nature and availability of EAP services, especially the assistance available in dealing with substance abuse. The Board's study found that there was considerable variation among the railroads as to the availability and distribution of EAP information.

The Safety Board is continuing to monitor the effectiveness of the Federal Railroad Administration's Alcohol and Drug regulations as they are applied in rail operations throughout the industry.

Collision Avoidance

The Safety Board has recommended that the FRA take an active role in developing advanced train control systems (ATCS) so that positive train separation becomes a part of any ATCS adopted by the industry.

Railroad/Hazardous Materials

The transport of hazardous materials by rail continues to warrant the Board's close attention. Examples include the February 2, and February 26, 1989, accidents in Helena, Montana and Akron, Ohio, and the July 22, 1989, accident at Freeland Michigan. Each accident resulted in the release of hazardous materials and the evacuation of residents.

As a result of the Helena accident, the Safety Board recommended that the DOT evaluate present safety standards for tank cars transporting hazardous materials by using safety analysis methods and modify existing regulations to achieve acceptable levels of safety for each product/tank car combination.

The Safety Board also reiterated to the Federal Railroad Administration, the Research and Special Programs Administration, and the American Association of Railroads its previous recommendations for headshields on aluminum tank cars, and it urged that action be expedited to require this protection. The investigation of the accidents at Akron, Ohio and Freeland, Michigan are still underway.

In addition, the Safety Board is conducting a safety study on "Transportation of Hazardous Materials by Rail" that will focus on other issues identified in Safety Board investigations.

Regional Railroads

Results from the investigation of a 1988 railroad accident involving two Iowa Interstate freight trains and the Helena, Montana accident indicate that a broad range of potential safety issues may have developed with the proliferation of the regional railroads.

Both railroads involved in these accidents were recently formed to take over portions of major railroad systems and fall within the category of "regional" railroads, of which there are currently about 90 in the United States. About two-thirds of these have been formed since 1982. In the aggregate they embrace about 30,000 route miles of rail lines in 46 of the 49 continental states. As a result, in April 1989, the Safety Board approved a proposed study of safety on regional railroads.

Highway

In the highway mode, the safety Board's attention has focused on three areas: bridge safety, schoolbus safety and the operators of heavy trucks.

The Safety Board during 1989 began investigations of four major highway accidents and completed a number of others.

Bridge Safety

Our investigations in 1989 included two bridge collapses:

- On April 1, the collapse of bridge spans in Covington, Tennessee resulting in eight occupant fatalities;

- On May 26, the collapse of temporary bridge spans in Miamitown, Ohio, resulting in at least two fatalities.

As the Nation's highway system matures, the Safety Board is becoming increasingly concerned about its aging highway bridges.

There are almost 580,000 highway bridges nationwide, of which about 80 percent are over water. During the past six years the Safety Board has investigated the collapse of six major highway bridges over water. Two of these investigations are still underway. The issues in these and other bridge collapses have focused on the adequacy of underwater bridge inspection programs, analysis of inspection data, and Federal oversight of states bridge programs.

For example, the Safety Board has determined that the probable cause of the collapse of a bridge over the Pokomoke River in 1988 was the inadequate response of the Maryland State Highway Administration to deficiencies noted in the underwater bridge inspection reports. Safety recommendations addressing these issues were made to the Maryland State Highway Administration, the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the International Association of Chiefs of Police.

Schoolbus Safety

In May 1988, near Carrollton, Kentucky, a church activity bus was struck head-on by a pickup truck killing the bus driver and 26 bus passengers. As a result of its investigation into this accident, the Safety Board recommended that the National Highway Traffic Safety Administration upgrade current requirements in Federal safety standards for schoolbuses pertaining to emergency egress, seating material flammability, and fuel system integrity. Also, recommendations were made to the 50 states, church organizations, and activity groups to phase out the use of pre-standard schoolbuses and to purchase only post-standard schoolbuses for public transportation purposes.

The Safety Board also recently determined that a contributing factor in a 1987 schoolbus accident in Florida killing five passengers was the crashworthiness of the schoolbus.

In September 1989, the Safety Board investigated another schoolbus/truck collision near Alton, Texas. After impact, the schoolbus went over an embankment and fell approximately 25 feet into a gravel pit partially filled with water. The bus came to rest on its left side totally submerged in water. Twenty one of the 81 students aboard were killed, and 20 others were hospitalized. Although the investigation is still continuing, preliminary results indicate that most of the fatalities appear to have resulted from drowning. Egress difficulties may have been a factor in the number and severity of injuries sustained by the bus occupants.

In 1989 the Safety Board completed a study of the crash performance of small schoolbuses and vans used for school transportation. As a result, the Safety Board issued recommendations to the National Highway Traffic Safety Administration (NHTSA), manufacturers of small schoolbuses and vans, associations of school transportation officials and contractors, calling for improvements in the safety of small schoolbuses.

Truck Safety

Heavy trucks are involved in about 400,000 accidents each year and represent 12 percent of all highway fatalities. Recent Safety Board efforts in the area of trucking safety have focused on driver performance issues such as fatigue and alcohol and other drug use, cab crashworthiness and brake system maintenance.

In a recently completed study on drug and alcohol involvement in fatal-to-the-driver heavy truck crashes, we found that thirty-three percent of the drivers tested positive for drugs and alcohol. Driver impairment from fatigue was the most frequently cited single accident cause or factor, and alcohol and drug use ranked second. The Safety Board will soon be issuing recommendations to the Department of Transportation, the states and the American Trucking Association to address the safety problems identified in our study.

In the course of investigating heavy truck accidents over the past three years, the Safety Board has also found many drivers fatally injured because of inadequate cab crashworthiness. The Board believes the design of the tractor cab to be structurally inadequate, and will be studying improved restraint systems and the benefits of improved rollover (roof crush) protection.

The Safety Board has also found poorly maintained, malfunctioning or inoperative brakes to be a significant factor in accidents. The Board has recommended that NHTSA publish a final rule by June 1990 to require automatic slack adjusters on all new trucks equipped with air mechanical brake systems which will automatically correct brakes that are out of adjustment. The Board also recommended that the American Trucking Association and the National Private Truck Council ask their members to adopt written policies regarding road brake adjustment.

Marine

The Safety Board investigated ten major marine accidents in 1989 and adopted five major marine accident reports. In addition, the Board completed a year-long study of the passenger vessel industry. Some of the accident investigations include:

- The catastrophic grounding of the U.S. Tankship EXXON VALDEZ and the release of crude oil;
- The collision between the Liberian cruise vessel M/V/ CELEBRATION and the Cuban bulk carrier M/V CAPITAN SAN LUIS;
- A fire aboard the U.S. Tankship CHARLESTON;
- The capsizing and sinking of the lifeboat TITAN; and
- The explosion/fire involving the U.S. fishing vessel NORTHUMBERLAND and an offshore gas pipeline.

EXXON VALDEZ

Many safety issues have resulted from these accident investigations, especially the EXXON VALDEZ, the worst oil spill in U.S. history. On March 24, 1989, the oil tanker EXXON VALDEZ ran aground in Prince William Sound near Valdez, Alaska. A blood sample taken from the master of the ship almost ten hours after the grounding revealed a blood alcohol content of .061. Prior to the grounding, the master had turned the navigation of the vessel over to a third mate who was not qualified as a pilot in the waters in which the accident occurred.

The issues arising from our investigation include the suitability for service by the crewmembers and Coast Guard personnel on duty at the time of the accident; operation of the Coast Guard's vessel traffic service system; the need for pilotage in Prince William Sound; the performance of the navigation watch of the EXXON VALDEZ; the effectiveness of the response to the oil spill; the effects of fatigue, alcohol abuse and other human factors on watchstanding; and the effectiveness of Exxon's drug rehabilitation program.

Passenger Vessel Safety

The Safety Board continues to evaluate the adequacy and enforcement of the Coast Guard regulations that address passenger vessel safety in U. S. waters. However, the Board is also concerned about the safety of U.S. citizens being carried aboard foreign registered cruiseships that operate out of U.S. ports. The Board's concerns for the safety of this segment of the passenger vessel industry results from its lack of jurisdiction to investigate accidents involving these vessels when they are not operating in U.S. waters and the Coast Guard's lesser oversight of these vessels relative to U.S. registered vessels. For example, the Safety Board was not able to complete the investigation into the collision between the Liberian registered cruise vessel CELEBRATION and the Cuban vessel CAPITAN SAN LUIS off the Coast of Cuba because a Federal court ruled that the Board lacked jurisdiction to investigate this accident. The CELEBRATION carried 1580 passengers, most of whom were U.S. citizens, from Miami to the Caribbean and back to Miami.

On October 11, 1989, the Safety Board adopted a report on its safety study of passenger vessels operating from U.S. Ports. As a result of this study, the Safety Board issued forty-one new recommendations and reiterated a number of previous recommendations.

The Safety Board found that the biggest need for improvement in safety was in the rapidly growing cruise industry dominated by ships that are flagged in foreign countries and do not come under the more stringent U.S. Coast Guard inspection standards. Additionally, as a result of this study, the Safety Board addressed the need for an expansion of its own authority to fully investigate accidents involving these vessels.

The Board's recommendations to the Coast Guard, the National Association of Small Passenger Vessel Owners, the Cruise Line International Association, and the National Association of State Boating Law Administrators, address a number of concerns including:

o the need for increased Coast Guard safety oversight;

o the need for crew training and emergency drill requirements;

o the need to reduce and eliminate language barriers among crewmembers and between crew and passengers;

o the need for mandatory accident reporting to the U.S. Coast Guard;

o the need for lifejackets at muster locations in addition to lifejackets located in cabins;

o the need to apply U.S. Coast Guard alcohol and drug rules to foreign flag passenger vessels; and

o the need for fire protection safety improvements.

Pipeline

Based on five pipeline accidents in Kansas and Missouri investigated during 1988 and 1989, older, unprotected metallic gas lines need to be protected against corrosion damage and cast iron gas mains need to be replaced on a scheduled basis. Procedures being used by the gas industry generally comply with the Federal safety standards; however, the Federal safety standards for these pipelines are not adequate and need to be strengthened and clarified so they can be better understood by governmental inspection personnel and by the regulated industry.

Although the probable causes of these five accidents have not been determined, the Safety Board has issued four recommendations to KPL Gas Service Company addressing these issues.

The Safety Board also issued two safety recommendations as a result of our investigation of the rupture of a pipeline following the derailment at San Bernardino. These recommendations address the need for improved inspection, maintenance and testing requirements.

Another pipeline safety issue concerning the Board is the low frequency electric resistance process for joining longitudinal pipe seams used during the 50s and 60s which often left small openings in the pipe. There is no practical, nondestructive inspection capable of detecting corrosion-weakened sections. Only through periodic hydrostatic pressure testing can these pipelines realistically be evaluated for continued safety service; yet, there is no Federal requirement for such testing.

The current investigation of the accident involving the fishing vessel NORTHUMBERLAND in October has highlighted another pipeline issue of concern to the Safety Board. There are an undetermined number of offshore pipelines in shallow waters that are unburied and thus subject to damage from vessel operations. This endangers the lives of mariners and the ocean environment. Although there are Federal requirements to bury such pipelines during construction, there are no requirements to maintain the burial of these pipelines. The extent of this safety problem is presently unknown. The Safety Board is currently evaluating the need for recommendations in this area.

Hazardous Materials

Hazardous materials safety issues cut across all modes of transportation. Better packaging and hazard identification on shipments, improved hazard identification, and a more complete description of hazardous materials in shipping papers, are important safety needs identified by Safety Board investigations. Additionally, the Board has recommended improvements in the routing of materials that pose substantial threats to communities, both for rail and highway transportation and improved training for fire rescue personnel responding to hazardous materials accidents.

Drug and Alcohol Testing

As with hazardous materials, drug and alcohol abuse affects all modes of transportation. The Board is pleased the Department of Transportation now has drug testing rules that cover all modes of transportation. However, the Safety Board is concerned about weaknesses and inconsistencies in these rules. For example, in aviation the rule allows sample collection for drugs as late as 32 hours after an accident or incident, and requires urine samples only. In the rail mode, both blood and urine samples are required as soon as possible after the accident or incident.

The Safety Board has made recommendations to the Department of Transportation calling for uniform regulations for all modes of transportation and of alcohol testing as well as drug testing. Drug and alcohol testing has been an issue in several of the accidents we have investigated.

FY 1991 Budget Request

The Board is requesting $30.94 million for FY 91, which is $3.7 million more than our FY 1990 post-sequester level of $27.2 million. These resources are sufficient to fund 348 full-time equivalent positions, 22 positions more than our FY 1990 staffing level of 326. These additional positions will be allocated to fill critical needs in our technical, investigative, and appeal programs. They will enable us to respond more effectively to the major safety issues posed by the increasing complexity of the transportation technology in all modes of transportation, and the increasing exposure to risk resulting from the growth of the transportation system. They will enable us, after a prolonged period with no new staff resources, to improve the quality and timeliness of our accident reports and recommendations, the depth of our accident investigations, and the efficiency and effectiveness with which we are able to allocate our resources. To give the Committee a better understanding of how we will use these positions, I would like to describe more specifically the purposes to which they will be put.

Nine of these positions will be dedicated to enhancing the staffing depth of several of our critical technical specialties. This will improve staff morale and will allow these specialists to receive the training necessary to maintain their currency in state-of-the-art technologies, something that our lack of staffing depth has forced us to limit severely.

An additional nine positions will be allocated to enhance our investigator staffing depth. Five of these positions are required for the Board's major aviation, railroad, and highway programs. This not only will improve the scope of our accident investigations and the timeliness and quality of our written reports, but also will increase the number of safety improvement recommendations to correct identified safety problems. The additional positions also will improve the Safety Board's ability to respond to major foreign accidents involving U.S. airlines and U.S. manufactured aircraft, which not only is a necessary contribution to supporting U.S. aviation exports, but also to identifying safety issues which could affect U.S. airline safety.

Four other investigator positions will be allocated to enhance our investigation of non-catastrophic accidents, which often result in significant system-wide safety improvements.

Finally, four positions will be allocated to our aviation appeals program under which airmen whose certificates are revoked, suspended or denied by the Federal Aviation Administration may appeal this action first to an NTSB administrative law judge, and then to the full five-Member Board. These four new positions will enable the NTSB to begin to reduce the current processing time of the cases appealed by airmen from almost 20 months to a more acceptable 12 months. As a result of an increase of enforcement actions taken by the Federal Aviation Administration, appeals of those actions to the Safety Board have doubled, resulting in an unacceptable backlog of approximately 1,000 cases. It is expected that incoming cases will reach the 1,500 level by fiscal year 1991. Without these additional positions, the processing time for these appeals will approach three years. This not only poses a serious threat to the Federal Aviation Administration's enforcement efforts, but also creates a serious potential hazard to the safety of persons and property, since in most cases the action taken against an airman is stayed until final disposition of the case, thus allowing the airman access to the airspace system as if no action had been taken.

The Board plays a major role in maintaining public confidence in our transportation system. Because of your past support of our safety improvement efforts, the Safety Board has been able to accomplish independent, efficient, and effective investigations, and induce substantial safety improvements with a minimum burden on the American taxpayer and without regulatory authority.

This concludes my formal testimony, Mr. Chairman, I would be pleased to respond to questions.

BIOGRAPHY

Mr. **Lehman**. Thank you, Mr. Kolstad, and we shall insert your biography in the record.

[The information follows:]

Biography of James L. Kolstad, Acting Chairman

James L. Kolstad, who has extensive transportation and aviation experience in both the public and private sectors, became a Member of the National Transportation Safety Board on May 22, 1987. President Reagan designated him Vice Chairman of the Board on March 4, 1988 for a two-year term. He became Acting Chairman on August 14, 1988. His term as a Member expires December 31, 1991.

Mr. Kolstad's experience in transportation has been in both private industry and government. He spent 1973-78 as Director of Community and Congressional Affairs for the former Civil Aeronautics Board in Washington. He then served on the Frontier Airlines management team for seven years as chief spokesman and head of corporate communications.

Mr. Kolstad's experience also included government relations for Skybus, Inc., in Denver and working for the American Trucking Associations in Washington, D.C. His position before appointment to the Safety Board was as a vice president of the Pat Thompson Company, a communications brokerage firm in Englewood, Colorado.

Before 1973, Mr. Kolstad worked for former Congressman James F. Battin of Montana and served as Director of Intergovernmental Relations for the U.S. Department of Transportation. He also was Executive Assistant for Intergovernmental Relations in the Office of the Vice President until he joined the White House Advance Office in 1972.

Mr. Kolstad was born in Washington, D.C. and grew up in Bozeman, Montana. He earned his bachelor's degree in journalism at the University of Montana and, after graduation, was a reporter with the Spokesman Review in Spokane, Washington. Mr. Kolstad took postgraduate courses in political science at the University of Maryland.

From 1962-64, he served in the U.S. Navy.

SAFETY RECOMMENDATIONS

Mr. **Lehman**. In which areas do you believe that the Board has the greatest effect in improving transportation safety?

Mr. **Kolstad**. Mr. Chairman, I think that the findings of our accident investigations, which result in specific recommendations to eliminate safety problems, are perhaps the most effective way that we address transportation problems. In this area, one of the things that I intend to do is to establish a "10 Most Wanted" list. These would be ten safety recommendations that we feel have the greatest impact on transportation safety.

This Agency issues approximately 500 recommendations every year. But, unfortunately, the Congress, the public, the industry and the government have no way of assessing what importance each of these recommendations may have, except as we may rate them as urgent or priority. I would like to showcase ten recommendations at any particular point in history for everyone to know about, that this Agency feels demands attention. So, that is one of the things that I think we are going to do that I believe will help improve the effectiveness of our recommendation process.

FAA OVERSIGHT

Mr. **Lehman**. You said you want to eliminate the safety problems. What is a specific safety problem that you want to eliminate?

Mr. **Kolstad**. I call a safety problem the lack of oversight, perhaps, by FAA over a carrier's operation which we believe they are responsible for, and we believe may lead to an accident.

Mr. **Lehman**. The lack of oversight by the FAA.

Mr. **Kolstad**. Correct. Over a carrier's training, for example.

Mr. **Lehman**. Over a carrier's——

Mr. **Kolstad**. Certification of aircraft or over their flight operations. That would be an example.

Mr. **Lehman**. And when will you have this list prepared?

Mr. **Kolstad**. The staff is working on it right now, and, it is going to have to go to the four Board Members to get concurrence on what they feel are the most important recommendations. There are many, many recommendations to select from. So, it is not something we can do tomorrow. The staff is already engaged in working on that, and I am hopeful that before too long we will have at least a list to begin to screen these 10 from.

Mr. **Lehman**. Three months? Six months? A year?

Mr. **Kolstad**. I would like to say within the next 90 days that we could have a list of ten recommendations.

Mr. **Lehman**. Would you provide the Subcommittee with this information when it is available?

Mr. **Kolstad**. Absolutely. And as new more important recommendations come along or as, hopefully, these ten recommendations would be implemented by whoever they are directed, new ones would take their place.

HUMAN PERFORMANCE

Mr. **Lehman**. Are the vast majority of accidents in all the modes primarily caused by some form of operator error? And, if so, what should or can be done to reduce this type of accident or cause of accident?

Mr. **Kolstad**. Mr. Chairman, we have placed a greatly increased emphasis on the human factor problem. As you know, about 70 to 80 percent of all accidents are operationally induced, or the cause of.

We established in 1983 a Human Performance Division, and that division has increased from five people to eleven people today. Also, we are working very closely with the FAA's new office of Human Factors. That is too new, yet, to get any real feel on what its effectiveness will be, but we have already started working with them on some joint programs.

Mr. **Lehman**. Don Engen once said that the greatest danger in aviation was the human mind, and I do not think anything has changed. I assume that is one of the things that you are saying.

Mr. **Kolstad**. Yes, sir. I certainly would not disagree with that.

Mr. **Lehman**. But human factors are so broad. They could be domestic disturbances, lack of sleep, or aging. They could be medical problems. What are you finding is causing these human factor accidents?

TRUCK STUDY

Mr. **Kolstad**. It is difficult to generalize on any specific cause. In the truck study that we just completed, for example, we found that fatigue was the number one human performance factor causing accidents. We found that drugs and alcohol place second as the leading cause of the accidents that we investigated. We have found one instance in aviation in which drugs were a factor, but only one. We have found medical problems in all modes of transportation.

Mr. LEHMAN. I was reading yesterday that a significant percentage of long distance truck drivers cannot read and write.

Mr. KOLSTAD. I am not aware of that.

Mr. LEHMAN. I wonder if you could look into seeing whether illiteracy, perhaps as far as long distance truck driving, is a factor in safety.

Mr. KOLSTAD. We did not specifically address literacy. What we did look at, though, and did find some egregious problems is in the whole area of truck driver screening. At the point of their employment, we found case after case in which the prospective employer simply had done an inadequate job of screening the truck driver's former employment history, former medical history, former driving record, even.

And we found a very high percentage of these drivers had a former history of drug or alcohol abuse.

Mr. LEHMAN. Have you ever been around a major truck stop for maybe two or three hours at a time?

Mr. KOLSTAD. I have hung around for an hour, yes, sir.

NTSB REAUTHORIZATION

Mr. LEHMAN. As the new Chairman who has prior experience as a Board Member, you are in an excellent position to alter the direction of the Board's activities if you believe any such changes are warranted. This is especially true this year, because Congress has to authorize your fiscal year 1991 budget request. Do you believe any changes are needed in the Board's authorities or in the manner in which the Board conducts its activities? For example, should the Board continue to determine the probable cause of all aviation accidents, or would you make a greater contribution to transportation safety by utilizing your existing resources to conduct more in-depth aviation accidents or, perhaps, more highway accidents?

Mr. KOLSTAD. Mr. Chairman, I think that is an area that definitely needs to be looked at. Let me address the first part, and then I will come back to the second part.

There is one change in our statutory authority that surfaced last year. And that involves our ability to investigate accidents of foreign-flagged, but U.S. home-ported, cruise vessels.

We had an accident in which a Carnival Cruise Lines vessel which was brand new, state-of-the-art, rammed and sank a Cuban freighter. Because the vessel was foreign-flagged, we were unable to conduct an investigation. It was flagged in Liberia. Carnival Cruise Lines told us that the Liberians would conduct an investigation. The Liberians had little incentive to investigate the accident. They did conduct an investigation of sorts.

We believe that the American public deserves to have the same level of findings, following an accident, that other modes of transportation have. We went to court to uphold our subpoenas and were overturned in court because the judge felt that we lacked the jurisdiction. He felt that we should have the jurisdiction, however, and he pointed out to us that when Congress drafted our statutory authority, that it was perhaps not perceived that we would have the kind of growth in the cruise industry that we have today. We hope to come to Congress to seek authority to conduct investigations of cruise ship accidents that occur beyond the 12-mile limit.

With respect to aviation accidents, you are absolutely correct in implying that the Board is engaged in accidents that sometimes do not have the kind of public payoff that is expected.

The problem comes, though, that we do not know that ahead of time. We do not know until we get to the accident scene and begin to conduct the investigation what we are going to find. Therefore, I am not sure that I would prepared to tell you, at least at this point, that it would be appropriate to reduce our ability to investigate every aviation accident.

TRUCK DRIVERS

Mr. LEHMAN. Let me just mention about this literacy issue because it may have been an invisible cause of accidents. Maybe you should look into this issue. Maybe we have a problem here we have not even thought about.

Mr. KOLSTAD. You are absolutely right, Mr. Chairman. And we are aware that this problem has surfaced in the enforcement of the Commercial Motor Vehicle Safety Act in which these drivers are now required to operate with one license, not multiple licenses. And this literacy question has come up, of course, in the administration of that program. We are concerned about it and perhaps we should give it more attention.

DOT/NTSB RELATIONSHIP

Mr. LEHMAN. Do you believe the Board should change the way you deal with the operating agencies within the Department of Transportation, particularly those, such as the FRA, that historically have had a relatively low acceptance rate of your recommendations?

Mr. KOLSTAD. Mr. Chairman, we think that the way we are dealing with them is certainly satisfactory. I intend to increase our acceptance rate. We have had in the past what I would characterize as relatively poor relations with the FRA, dating back maybe a couple of years ago. But over the past year, I have seen a marked improvement in our relationship with FRA and, indeed, the acceptance of our safety recommendations has been dramatic. The improvement has been dramatic and we have a much better relationship both in Washington, D.C. and on the accident site.

GOALS FOR NTSB

Mr. LEHMAN. Have you established any other measurable and attainable goals for the Board during your forthcoming term?

Mr. KOLSTAD. As I mentioned, I think that we need to be more effective in our recommendations. I want to insure that the recommendations that we do craft are realistic ones. And to craft a realistic recommendation, we have to understand what the problems of industry are. So, one of the things that I have been trying to do is establish a better dialogue with the industries in all modes: pipeline, aviation, highway, rail and marine.

So, creating a better working relationship, it seems to me, is going to enhance our ability to write better recommendations. I think we also need to address employee morale. I think morale has suffered in the past. I think it has been greatly improved over the past several months. I have taken a number of steps to try and address that issue by giving our managers more flexibility, giving our regional directors budgeting authority, for example, giving our people more opportunity to decide where they want to spend their dollars, whether it be on training, whether it be on equipment or whatever.

I also intend to insure that we have a much better program for keeping our investigators trained. This is a great concern of mine. With the technology that we are seeing, the technological advancements in all modes of transportation, it is critically important that our investigators maintain a high level of proficiency, and I am going to be very insistent that we somehow get our people trained. Unfortunately, in 1989 in an environment in which we had the same investigators investigating accidents time after time and launching 51 go-teams, it was simply impossible to get our people as adequately trained as I think they should be. So, that is going to be an area that I will concentrate on.

Mr. LEHMAN. Do you have criteria by which you are able to measure this impact of what you are trying to do?

Mr. KOLSTAD. I hope to be able to measure it in attrition, output and timeliness. Timeliness is very important.

Mr. LEHMAN. Mr. Coughlin?

Mr. COUGHLIN. Thank you, Mr. Chairman.

I want to join the Chairman in welcoming you in your first appearance here as Chairman.

Mr. KOLSTAD. Thank you very much, sir.

NTSB CHAIRMANSHIP

Mr. COUGHLIN. Last year, you were here as Acting Chairman. And your nomination by the President and confirmation and swearing in were richly deserved and a long time in coming. I congratulate you on not only becoming Chairman, but on the gentleman's work you did as Acting Chairman. It has not been an easy time at the National Transportation Safety Board. I know of the uncertainty that existed, the death of a very knowledgeable and well liked Member. All of this has an impact on the staff morale. My hat is off to you for keeping it together.

Mr. KOLSTAD. Thank you, sir.

OMB REQUEST

Mr. COUGHLIN. I think that one of the most important things, as you pointed out correctly just a few minutes ago, is having the morale of the Board back and the esprit d'corps of the Board. I think that is significant.

If you will look at the expansion in transportation that is going on, particularly in aviation, if you look at deregulation, if you look at the changes in the airline industry, and if you look at the problems of aging aircraft, the mission of the Board obviously is more important than it has ever been at this time. I am pleased to see that your budget calls for an increase of $3,700,000 and 22 new positions. Was that your full request to the Office of Management and Budget, or did you request a larger increase and that was then reduced?

Mr. Kolstad. No, sir. We asked for 381 positions. I was very pleased that they gave us 22 positions. This is the second greatest increase in the Board's history. So, I was very pleased.

Mr. Coughlin. That was your full request to the Office of Management and Budget?

Mr. Kolstad. Yes, sir. 381 and $35,800,000.

Mr. Coughlin. $35,800,000?

Mr. Kolstad. Yes, sir.

Mr. Coughlin. What is the difference between what you asked and what you got? I just want to make sure I understand for the record.

Mr. Kolstad. We were asking for a total of 381 positions, or 55 positions more than this year's level of 326. We got 22 of the 55.

Mr. Coughlin. In what areas did you receive the positions that you requested?

Mr. Miller. We are concentrating our increases in the aviation area and some smaller increases in highway and rail. Some of the staffing depth problems is what we have tried to approach in filling with these 22 positions, there are still many more that we need additional resources in—one of a kind specialties.

One of the things that we would do with more positions, Congressman Coughlin, is to add human performance people in our field offices, for example. That was one of the things that we were going to do with the additional positions requested.

Mr. Coughlin. If you could provide for the record the list of the positions you requested from OMB.

Mr. Kolstad. Certainly.

Mr. Coughlin. And those that you received, that would be helpful.

The information follows:]

Program	OMB request	Positions received	Difference
Policy and direction:			
Attorneys—Appeals	3	2	1
Paralegal/Legal Technician	1	0	1
Subtotal	4	2	2
Major investigations:			
Investigator-in-Charge—Aviation	2	2	0
Investigator-in-Charge—Railroad	1	1	0
Investigator-in-Charge—Highway	1	1	0
Investigator-in-Charge—Haz mat	1	0	1
Technical Writers	2	1	1
Editors	2	0	2
Administrative/clerical	1	0	1
Subtotal	10	5	5
Field investigations: [1]			
Air Safety Investigators	5	2	3

Program	OMB request	Positions received	Difference
Railroad Safety Investigators	2	1	1
Highway Safety Investigators	2	1	1
Administrative/Clerical	1	0	1
Subtotal	10	4	6
Technology:			
Air Traffic Control	1	1	0
Aircraft Maint. Records	1	0	1
Aircraft Performance	1	1	0
Flight Data Recorder	1	1	0
Helicopters	1	1	0
General Aviation Specialist	1	1	0
Aircraft Structures	1	1	0
Aircraft Systems—Avionics/Hydraulics	1	1	0
Aircraft Systems—Electrical	2	1	1
Aircraft Crashworthiness	1	0	1
Railroad Track Structure/Dynamics	1	1	0
Railroad Mechanical Engineering	1	0	1
Railroad Human Performance	1	0	1
Railroad Survival Factors	1	0	1
Automotive Engineering	1	0	1
Marine Survival Factors	1	0	1
Meterologist	1	0	1
Hat Mat/Pipeline—Human Performance	1	0	1
Survival Factors—Fire/Explosions	1	0	1
Administrative/Clerical	1	0	1
Subtotal	21	9	12
Safety programs:			
Safety Studies—Aviation	1	0	1
Recommendations—Railroad	1	0	1
Subtotal	2	0	2
Administration:			
Computer Systems Analyst	1	0	1
Computer Specialist	1	0	1
Subtotal	2	0	2
Administrative Law Judges:			
Judges	3	1	2
Paralegal/Legal Technician	2	0	2
Administrative/Clerical	1	1	0
Subtotal	6	2	4
Totals by program:			
Policy and Direction	4	2	2
Major Investigations	10	5	5
Field Investigations	10	4	6
Technology	21	9	12
Safety Studies	2	0	2
Administration	2	0	2
Administrative Law Judges	6	2	4
Total	55	22	33

[1] Staff covers Washington headquarters and 10 regional locations.

AVIATION INVESTIGATORS

Mr. COUGHLIN. It has been said that some veteran investigators have defected to the FAA, where there is more room for advancement and perhaps better morale. Have there been that kind of defections and is there, indeed, more room for advancement in the FAA? And what can we do to make the NTSB more attractive?

Mr. KOLSTAD. Well, there have been defections in the past to the FAA. And it has been a hard thing to swallow. Usually, they go upstairs to FAA, and they wind up assuming, in many cases, similar responsibilities, only there is less of it. I feel that they have more responsibility at the NTSB, and they do not have to work as hard, and the FAA can, of course, pay them more than we can. So, one of my priorities is to begin to upgrade some of our positions, so that we can provide some career growth, so that if you have an investigator who is, for example, a GS-13, that at least he has a window to shoot for in becoming a 14 or a 15. That just has not been possible in the past. That is why I think that getting these additional positions in fiscal year 1991 and, hopefully, additional positions in fiscal year 1992 will enable us to provide a lot more stability for our work force, because these people are highly trained, they are very dedicated, and I hate to see them walk out.

Mr. COUGHLIN. What is the average grade of your inspectors and how would you go about paying them more?

Mr. MILLER. The journeyman level for our investigators is GS-13. What we have done is to identify, for example, some national resource specialists in these specialized areas that I was talking about, where they are essentially one of a kind and nationally recognized experts, which enables us to increase the grades there.

Frankly, in some of the major investigations, for example, our investigators in charge are still GS-14's. And for someone who is running a $500,000 operation, which our major investigations are, with up to 60 to 100 people under their supervision, we believe that those grades can be upgraded to 15's. And we are doing that sort of thing.

Mr. COUGHLIN. You got what I would consider a bum rap for a statement pointing out that the Federal Government is not the guarantor of safety. What is the proper role of the Federal Government?

Mr. KOLSTAD. Congressman, I think the proper role of the Federal Government is to provide guidance on procedures and process and oversight to insure that those procedures and process are followed.

The point that I was trying to make was that the real responsibility for safety occurs in the cockpit of the aircraft, in the cab of the truck, and on the bridge of the ship. Not with some 45,000-man agency. That 45,000-man agency should provide appropriate regulations and rules that we need to adhere to in order to provide a safe system. And, of course, when they do not provide adequate oversight, then it creates a vacuum that sloppy practices can sometimes occur; but there is no way that you can have an inspector riding in the cockpit of every aircraft that flies. I am not sure that would add to safety in any event.

DRUG TESTING

Mr. COUGHLIN. One other area that I would just like to mention. As you know, I wear another hat as Vice Chairman of the Select Committee on Narcotics Abuse and Control and have been interested in the drug testing area and the NTSB's position on drug testing, particularly random testing. Where would you rate random drug testing's effectiveness in terms of safety?

Mr. KOLSTAD. Congressman, I have to speak for myself on this particular point. I am very much in favor of random testing. I was in favor of it when I arrived at the NTSB. I have seen or learned nothing since I have been there to change my mind. It is the one effective deterrent against drug abuse of all the testing procedures. I think it is time that the NTSB took another look at random testing. And we are going to be doing that.

Mr. COUGHLIN. Will the NTSB be reviewing the different drug testing regulations in the different modes of transportation? I note, for example, that the Federal Railroad Administration has an 8-hour time limit for post-accident testing, whereas the Federal Aviation Administration has a 32-hour limit in which there can be a post-accident testing.

Mr. KOLSTAD. This is one of our concerns. We can find no rationale for the differences among the various modes of transportation. And why one would establish a 32-hour time limit for aviation and an 8-hour limit for rail is difficult to understand.

We obviously think that the time limit should be as short as possible. The railroad rule we believe is the best rule of all the modes. It tests for both drugs and alcohol. It tests urine and blood. The aviation rule, for example, in addition to being a 32-hour limit, tests only urine.

Fortunately, I believe that Secretary Skinner is addressing the alcohol issue, and we are very hopeful that perhaps alcohol may be included in some of the other modes.

PASSENGER VESSEL SAFETY

Mr. COUGHLIN. And finally, let me just follow up on one question that my Chairman raised, if I may. That is in connection with the foreign-flagged vessels. In questioning the Coast Guard about this last year, Admiral Lusk said that the foreign manning standards are quite compatible with ours. Basically, their standards are the same, and the licensing is basically the same. I take it that does not necessarily comport with what you have found.

Mr. KOLSTAD. Absolutely, Congressman. I have personally gone aboard these new vessels and participated in what is known as a pre-qualification inspection, which occurs when these vessels come to the United States and wish to begin doing business.

The Coast Guard goes aboard and basically determines that there is adequate fire-fighting equipment, and they determine that there are adequate life rafts and life boats. But I personally talked to crewmen who were assigned to lifeboat stations who could not speak English. I talked to other crewmen who did not know what station they were supposed to be assigned to because they had just reported aboard and they, in fact, had critical lifesaving responsibilities. So, there are many areas that need to be improved. So, I would take issue with that.

Mr. COUGHLIN. Thank you, Mr. Chairman. I have some other questions, I can ask later.

FTE LEVEL

Mr. LEHMAN. I will go ahead and will yield back.

Last year's Appropriations Act provided $27,600,000 for the Safety Board to support a full-time equivalent employment level of 339. This amount was reduced by $368,000 as a result of sequestration, and you indicate that your fiscal year 1990 FTE level will be 326, or 13 less than we assumed in last year's report. Would you briefly explain how you arrived at your fiscal year 1990 FTE level?

Mr. KOLSTAD. Yes, sir. I think there were basically three factors involved here. One was sequestration. The other was the pay raise, and the other was employee benefits. And between those three factors, the net difference was only two employees.

Mr. LEHMAN. Can you put more detail in the record on that?

Mr. KOLSTAD. Certainly.

[The information follows:]

Our estimate of 326 in FY 1990 assumes that we will have to absorb the following: $.4m reflecting the effect of sequestration ($.4M); $.7m reflecting the cost of pay raises (3.6% in 1990 and 3.5% in 1991); and $.3m for increases in employee benefits costs.

Because about 70 percent of our appropriation is used to pay our employees, this reduction has had a direct impact on our employment level.

Mr. LEHMAN. Are employee benefits your retirement pay?

Mr. KOLSTAD. I think it is basically health and retirement.

Mr. LEHMAN. Your Agency's contribution to the federal retirement plan.

Mr. KOLSTAD. Yes, sir.

Mr. LEHMAN. For fiscal year 1991, you are requesting an increase of 22 staff years. We will discuss this request in more detail when we review your budget justification. However, would you tell us, in general, the extent to which this increase will improve transportation safety?

Mr. KOLSTAD. I think we can improve, first, on timeliness of our products. And timeliness is critically important because that is getting the fruits of our efforts into the hands of those who can affect the change so that, hopefully, we do not need to repeat the accident.

I think we can also improve quality, and that in no way says that I am ashamed of the quality that we are producing now. But I think we can also be more pro-active in addition to being reactive. This is basically a reactive kind of agency; but I think that we have a role that also involves advocacy transportation safety, which means helping the states pass needed safety legislation regarding boating safety, boating while intoxicated, for example, administrative license revocation, issuing news you can use, so to speak, for the traveling public, using our data base more effectively to glean from it information and tips for motorists, pilots, boaters and so forth that can be used.

BUDGET REQUEST

Mr. LEHMAN. Do you believe that your fiscal year 1991 request of $30,940,000 and the 348 FTE's provides you with resources necessary to do the job you believe needs to be done in fulfilling the Board's mission?

Mr. **Kolstad**. Well, Congressman, I am, of course, very pleased that the Bush Administration has given us the 22 positions. I think it is a great start. It is going to do a lot toward helping us to get to the position that we need to be. It is not what we asked for, but it certainly is a start. I am not sure that we could amalgamate all 381 positions if they were to give them to us. I would certainly like to have the challenge of trying it, but as a practical matter, I think that is an excellent start. I am looking forward to pursuing the issue next year as well.

ATTRITION

Mr. **Lehman**. During the past year there have been a number of articles indicating that the Board has lost many of your experienced investigators. Last year, we discussed the fact that between fiscal years 1987 and 1988, the rate of attrition of your technical staff in fiscal year 1989, and how did that compare with the previous year?

Mr. **Kolstad**. Well, attrition actually went up last year by a couple of percent, from 9 percent to 11 percent. And I frankly attribute that to the period of uncertainty that I believe existed because of simply the lack of knowledge by the staff of what was going to happen with the leadership of the Board.

I would like to point out that the attrition rate is down from 14 percent, which is a level that it had in 1985, 1986 and 1987. I am concerned about an attrition rate of even 9 percent. So, I am going to be working on that.

Mr. **Lehman**. Where did they go? Did they go to other Government agencies, or did they go to the private sector, or did they retire?

Mr. **Kolstad**. They go everywhere, Mr. Chairman. They go to FAA. They go to the private sector. We had two employees last year who were investigators that were picked up by the airline industry. We had one join the U.S. Army as an investigator. We had one go to the FAA. We had retirements.

Mr. **Lehman**. A little bit of everything.

Mr. **Kolstad**. Yes, sir.

INVESTIGATOR EXPERIENCE

Mr. **Lehman**. You also indicated that your most senior aviation investigator had only five years experience, when, in the past, it was not unusual to have aviation investigators with 15 years experience. To what extent has the experience level of your aviation investigators continued to deteriorate?

Mr. **Kolstad**. I do not think, frankly, sir, that it has deteriorated. Most of our investigators have a total experience level of about 15 years, five years with the Board and ten years with the aviation industry of some sort. Our highway and railroad investigators may have somewhat less than that, but I think that the key point here is that the investigators that we are getting now are far better trained than the investigator that we were getting five years ago. The quality of training that they have coming in is better than it was.

Mr. LEHMAN. Who trains them?

Mr. KOLSTAD. Well, a variety of different entities. You have aviation training schools, like Embry Riddle. You have industry training that occurs, government training, the military. It is a variety.

Mr. LEHMAN. On-the-job training?

Mr. KOLSTAD. In some cases, on-the-job; but in other cases, formal schooling. We have picked up two employees, for example, from Embry Riddle University who have proved to be excellent employees.

Mr. LEHMAN. Were they students there or professors?

Mr. KOLSTAD. No, these were students.

Mr. LEHMAN. Would you provide for the record the number of years experience needed as an investigator and as an investigator-in-charge for each of your aviation investigators-in-charge?

[The information follows:]

Field investigators need 2–3 years, as a minimum, of accident investigation experience or acceptable substitutes. An investigator-in-charge needs at least 3 years of accident investigation experience or acceptable substitutes according to the OMP X-118, qualification guidelines. In addition, field investigators need at least 1,000 hours of pilot-in-command flying time, whereas investigators-in-charge need 2,000 hours.

INVESTIGATOR EXPERIENCE

Mr. LEHMAN. Another problem that has been mentioned is the lack of experience of your new hires. According to one article, ten years ago to be considered for an aviation investigator position, one needed 1,500 hours of pilot experience, and either an airframe and powerplant mechanic license or some previous accident investigation experience. Now, your entry level positions reportedly only require 1,000 hours flight-time and a college degree. One of your investigators reportedly stated: "The guys that have been hired recently have not had the experience to do the job." To what extent is this lack of experience affecting the quality and quantity of your reports and recommendations?

Mr. KOLSTAD. Mr. Chairman, I guess I would disagree with the statement. As I say, I believe that the investigators that we are getting now have better training. We have a senior pilot, for example, that we received from Eastern Airlines. I think most of our people are well trained, or we would not be hiring them.

Mr. LEHMAN. It seems like some of these pilots may be a source of resource for new hires.

Mr. KOLSTAD. Absolutely. I think that some of these comments, Mr. Chairman, may be based upon how many total flight hours they have. Some pilots pride their flight hours very highly and they like to compare flight hours. For example, somebody has 10,000 hours and somebody has 2,500. For our purposes, we are more concerned about the total person: what kind of total experience level he has.

FIELD INVESTIGATIVE ASSISTANTS

Mr. LEHMAN. It was also reported that in your field offices investigative assistants without any aviation or investigative background were completing accident investigations. Are you aware of any instances where this happened?

Mr. **Kolstad**. No, sir, I really am not. We have two investigative assistants. One is in New York and the other one is in Atlanta. These people are charged with the responsibility of collecting basic information concerning the investigation. And this occurs principally by telephone. So that these people are field investigators, I think would be a wrong characterization.

SAFETY BOARD MORALE

Mr. **Lehman**. According to one article, employees transferring to FAA, that you mentioned, and those retiring were unanimous in their "concern and disgust over the rapidly declining morale at the Board." To what extent is this accurate based on the information you have received from departing employees during your own exit interviews? And how would you characterize the morale?

Mr. **Kolstad**. I am glad you mentioned exit interviews. One of the things that I have done is to interview every employee before they leave the Board to ascertain why they are leaving. And perhaps they are not shooting straight with me, but I believe they really are; I have not had them say that the reason that they are leaving is because they feel so demoralized by working at the NTSB.

Morale is something that one needs to address at all times. And I happen to feel that morale is better at the Board now than it has been since I have been there. But it is something that we need to be constantly alert to and I am doing that.

Mr. **Lehman**. Sometimes they might tell you one reason and tell the reporter another reason.

Mr. **Kolstad**. That is exactly right.

CIVIL PENALTY DEMONSTRATION PROGRAM

Mr. **Lehman**. The U.S. Administrative Conference recently completed a review of the FAA's civil penalty demonstration program which expires on April 30, 1990. The Conference is recommending that the program be continued, but that it be moved to the NTSB. Do you have a position on what should happen to this program?

Mr. **Kolstad**. Mr. Chairman, we testified in the House, prior to their adjournment last fall, on this issue. We stated then, and it is still our position, that we believe that perhaps the Safety Board is an appropriate place to house this program; but we are extremely concerned over the possibility or the potential of getting the responsibility without the resources. And we feel that we need three people for every 200 cases. If we had that, we believe that we could handle the job.

The thing that we do not want to do is exacerbate an already bad situation with respect to the pilot appeal actions. And to give us the responsibility without giving us the resources hurts both the civil penalty program and it hurts the appeal program.

Mr. **Lehman**. How many more people would you need to handle this program?

Mr. **Kolstad**. We need 15 people for 1,000 cases.

Mr. **Lehman**. How many cases would you have?

Mr. **Kolstad**. I do not know how many cases——

Mr. **Lehman**. For the record, could you give us what you think it would take to handle this?

Mr. **Kolstad**. Certainly.

Mr. **Lehman**. Mr. Coughlin is the Ranking Member on the Select Committee on Narcotics Abuse and Control. Would you like to ask the questions on drugs and alcohol?

ALCOHOL AND DRUGS

Mr. **Coughlin**. Thank you, Mr. Chairman.

Last year, you stated that drugs and alcohol are the single greatest threat to transportation safety. You recently completed a study of fatal truck accidents which seems to confirm your earlier statement. What does the Board believe is the best way to address the problem?

Mr. **Kolstad**. Well, with respect to highway safety, generally, we think that the passage of administrative license, per se, is perhaps the most effective way of lowering the drunk driving fatalities.

We are also very strong believers in sobriety check points and with respect to commercial drivers, much better and more comprehensive background checks during the employment phase. And, of course, we are also strong believers in a broad testing program that I personally believe should include random testing for the commercial segment.

Mr. **Coughlin**. What do you mean by administrative licensing?

Mr. **Kolstad**. This is the process by which if a motorist is stopped for suspicious driving and tested on the road for alcohol and found to be intoxicated, his license is taken immediately.

Mr. **Coughlin**. The Department of Transportation recently issued rules involving drug tests for about 4,000,000 transportation workers, including truck drivers. What is your view of these rules?

Mr. **Kolstad**. Well, Mr. Coughlin, I have already stated that I think that the rules are certainly a step in the right direction. We are concerned about the lack of uniformity among these rules. We think that alcohol should be included. We think that there should be more timely collection. We think that there should be a blood sample collected and we think that the range of drugs should be expanded.

Mr. **Coughlin**. The Department of Transportation has also issued a proposed rule dealing with alcohol abuse among employees in safety or security-related jobs. Did the Board comment on this proposed rule?

Mr. **Kolstad**. No, sir, we have not; but we are certainly in the process of doing it.

DRUG OR ALCOHOL RELATED ACCIDENTS

Mr. **Coughlin**. Would you provide for the record an estimate by mode of the percentage of transportation accidents or fatalities that are drug or alcohol related?

[The information follows:]

The Safety Board considers the abuse of alcohol and other drugs to be the number one transportation safety problem faced by the nation. Based on available data, which varies from mode to mode, the following are the Safety Board's estimates of the percentage of transportation accidents or fatalities that are drug or alcohol related.

Highway—The highway fatality data is the most reliable. In 1988, NHTSA estimated that 49.6 percent of all traffic fatalities were alcohol related. This amounts to 23,358 of the 47,093 who died on the highways. There is one alcohol related fatality every 22 minutes. Each year, about 600,000 motor vehicle crashes are alcohol related. The estimates of drug involvement are less reliable. A 1988 NHTSA report indicates that the frequency of drug use by fatally injured drivers was 10-15 percent with 50-80 percent of these drivers also using alcohol. The Safety Board's recently completed study of fatally injured drivers of heavy trucks found that 33 percent of the drivers were using alcohol or other drugs.

Railroad—Based on tests conducted by the FRA of railroad employees involved in 178 selected accidents, 41 of the 682 employees or 6 percent tested positive for alcohol or other drugs. This is similar to the results found in 1987.

Marine—In 1988, an estimated 946 persons died in recreational boating accidents. While no firm data is available, State studies show that between 58-83 percent of those fatally injured in these types of accidents had alcohol in their systems. No data is available for drugs. Nor is data available at this time for commercial marine accidents.

Aviation—From 1983 to 1987, an average of 37 pilots each year involved in accidents tested positive for alcohol. This is 9.5 percent of all accidents. A 1984 Safety Board study, which analyzed data from 1975-1981, found that more than 10 percent of the toxicological tests on deceased pilots were positive for alcohol. However, no pilot of a U.S. certified air carrier operated under 14 CFR 121 was found to have a positive alcohol test since at least 1964. Tests were positive for alcohol in 6.4 percent of the tests taken from fatally injured scheduled commuter pilots and in 7.4 percent of fatally injured pilots in nonscheduled-on demand air taxi-operations. In general aviation, 10.5 percent of the tests on fatally injured pilots were positive for alcohol. The study pointed out that the extent of alcohol invoivement in nonfatal accidents is not known because there is no Federal authority to test surviving pilots for alcohol. A similar situation existed, until recently for drugs other than alcohol. However, Safety Board records show that from 1983-1986, in 22 fatal accidents the pilots use of drugs was found to be a cause or factor in the accident. The only scheduled U.S. passenger flight that involved drugs (cocaine) occurred at Durango, Colorado, in 1988. Nine persons died in that accident.

CIVIL PENALTY DEMONSTRATION PROGRAM

Mr. **COUGHLIN**. Do you want me to proceed?

Mr. **LEHMAN**. I will pick it up, and then I will give it back to you in a minute.

Just to review the mathematics on these cases, how many new people would you need? I think you said 15 people per 1,000 cases?

Mr. **KOLSTAD**. Yes, sir.

Mr. **LEHMAN**. And if you divided 15 into 1,000, that would be 66 cases per person?

Mr. **KOLSTAD**. Yes.

Mr. **MILLER**. Our basis for suggesting three people is that one of them would be an Administrative Law Judge who would hear the initial appeal of the case; one would be an attorney in our General Counsel's Office who would handle the further appeal to the full Board; and one would be an administrative support person. So that, basically, when we say three people, we cannot really just divide the three people into the number of cases.

The basis on which we came up with our figures is that for every 200 initial appeals filed, we feel we will probably need three people. The Administrative Law Judge would be able to hear about, which our Administrative Law Judges currently do, hear about 170 cases a year. So, that is close to the 200.

Mr. **LEHMAN**. What bothers me a little bit is it looks like it would be about one case per person per week, or a little more. And that seems to be a lot of people.

In your report, provide some detail about how many cases each person should handle per month.

Mr. **Miller**. Right, okay. We will do that.

[The information follows:]

Currently, the Safety Board is receiving approximately 1,200 appeals per year that are initially handled by our staff of six administrative law judges. Approximately 300 appeals per year from law judge decisions or orders are received by the full five-Member Board. These further appeals to the Board are handled by the General Counsel's Office. That office has a total of five attorney positions (including the General Counsel), but only about one-half of these resources (or 2.5 attorney years) can be allocated to the appeals function because of the other legal services required by the Board. The Board's resources devoted to the certificate action appeal function have therefore been clearly outstripped by the rapidly increasing workload, with the result that a sizeable backlog of cases has developed both in the law judge's office and in the General Counsel's office.

The Board addressed this growing problem in its budgetary request for Fiscal Year 1991. We stated that the increasing level of appeals is expected to reach 1,500 by FY 91, and requested 10 additional positions (three administrative law judges, three attorneys, three legal technicians, and one legal secretary), and $1.03 million annually. The Board stated:

"The lack of sufficient Board staff to handle this burgeoning number of appeals in a timely manner threatens the effectiveness of FAA's enforcement efforts. Without more resources, the processing time for these appeals will approach 3 years. Further, because the action taken against an airman is stayed until final disposition of the case, the airman is allowed acess to the airspace system as if no action had been taken, possibly posing a serious hazard to the safety of persons and property."

It is important for Congress to understand that the Safety Board has a serious resource gap in regard to its certificate action program. To place the civil penalty program within our jurisdiction without adequate resources, would only compound the overall problem. However, if the Board were given adequate resources necessary to carry out that function properly, we would be in a position to take on the civil penalty review function.

The magnitude of the function is difficult to assess at this point, so the specific resources needed by the Board would be difficult to anticipate. Nevertheless, as a working estimate, the Board would need three additional personnel (one law judge, one attorney and one support person) per 200 incoming appeals annually. This is based on the fact that a law judge can handle that number of cases per year and that roughly one-fourth of those cases (or 50 per year) would be appealed to the full Board.

The Administrative Conference of the United States commissioned Richard Fallon, a Harvard Law Professor, to undertake a study of the FAA's Civil Penalty Assessment Demonstration Program. Professor Fallon's draft report dated January 17, 1990, evaluated the NTSB's need for resources to implement a transfer of this program from the FAA to the NTSB. He interviewed officials at the NTSB, DOT and FAA, and his report represents the only independent assessment we know of that addresses this question. The following are some of Professor Fallon's more noteworthy conclusions in this regard.

The NTSB's "basic claim that it needs increased staff merely to handle its current caseload seems indisputable." p. 54.

The NTSB's estimate that it needs one Administrative Law Judge and one staff attorney for each 200 added cases "seems entirely reasonable." p. 55.

Projecting the number of civil penalty cases that are likely to require formal hearings "is a devilishly difficult question." p. 56.

Planning "should proceed in anticipation of roughly 1,000 requests for formal hearings per year, if not in 1990 then in the long run." pp. 56-57.

If these estimates are accepted, "the NTSB would need four or five new ALJs and four or five more full-time attorneys to absorb the civil money penalty cases now assigned to the FAA and its parent the DOT—and this beyond those staff increases necessary to handle the NTSB's currently existing caseload." pp. 59-60.

Since one new ALJ and one new attorney position require one additional support position, we anticipate needing a total of 12-15 additional positions just for the civil penalty program, assuming that the program would generate 800-1,000 appeals to this agency.

AVIATION SAFETY STATISTICS

Mr. **Lehman**. In 1989, the number of fatal accidents for air carriers was the highest level since 1968 and the fatal accident rate for all aviation was at its highest level of the decade. What is your view of those statistics and the trend in aviation safety? Is aviation getting safer or is it becoming less safe?

Mr. **Kolstad**. Mr. Chairman, it appears that if you take 1989 out of the big picture that the accident statistics are still trending downward for all modes of aviation. That is the part 121, the commuters, the general aviation, all the Part 135 air taxi operators, are staying relatively flat. We are not sure what the implications of last year's fatal aviation accidents are. They were the highest in any year since 1968. It is a great concern to us.

Mr. **Lehman**. Is that in terms of passenger miles?

Mr. **Kolstad**. No. Total fatal accidents, in the air carrier segment was the highest since 1968. We do not know whether this is an aberration, or whether this is suggestive of a change in direction. But it is of concern to us.

Mr. **Lehman**. There is considerably more traffic now than there was in 1968. I am trying to change gross numbers to passenger miles or some data base.

Mr. **Kolstad**. Well, the fatal rate is growing because of that exposure that you speak of. There are more fatal accidents. But aviation is continuing to get safer in all segments, including general aviation, except for the Part 135 air taxis. And perhaps the greatest safety improvement has occurred among the commuter industry.

Mr. **Lehman**. You can expand on this for the record.

Mr. **Kolstad**. Could I have our chief investigator respond to that, sir, maybe with a little more clarity?

Mr. **Lehman**. Go ahead.

Mr. **Loeb**. I think you are correct, sir. The number of fatal accidents on 121 carriers was the greatest we have had in a number of years.

Mr. **Lehman**. What about the rate?

Mr. **Loeb**. The rate of those fatal accidents, also, was higher than it has been for years.

Mr. **Lehman**. That is what I am trying to get at.

Mr. **Loeb**. Yes, it was. The increase in operations do not account for all of the increase in the fatal accidents.

Mr. **Lehman**. That is what I was trying to get to.

Mr. **Loeb**. That is correct. We do not know, though, whether that is a trend or an indication of something to come, yet.

Mr. **Lehman**. Right now, regarding the question of whether aviation is safer or less safe, you could not answer yes or no right now?

Mr. **Loeb**. I would answer that aviation is safer now than it has been, because I do not believe at this point there is any indication that this is anything other than an aberration.

AVIANCA ACCIDENT

Mr. **Lehman**. The Avianca plane crash on Long Island raised a lot of safety issues. What is the status of your investigation of this accident and what have you learned to date?

Mr. KOLSTAD. Mr. Chairman, we issued two recommendations the day before yesterday, both to the FAA, stemming from the Avianca crash. One insures that domestic and foreign air carrier flight crews have knowledge and refresh themselves on the ATC procedures. The other one requests that ATC be more cognizant in clarifying communications they receive from flight crews that may be ambiguous and may suggest a problem. But the issues that we are looking at in Avianca involve the communications that occurred between the crew, between the flight crew and ATC, and internally between ATC, personnel.

Mr. LEHMAN. Communication is a problem, especially in that some words just do not translate in intensity from one language to another. Do you think that is part of the problem?

Mr. KOLSTAD. That is part of the problem. That, of course, goes to the fact that these are foreign air carriers, but we have instances even this year in which there has been a lack of clarification by flight crews of exactly what their situation is.

Let me give you an example. We had a situation recently in which a crew said, "I have six minutes of fuel left." Because of that, ATC gave this aircraft priority, pulled aircraft out of the lineup that were scheduled to land in front of this particular aircraft to give this airplane priority landing status. What the crewmember was referring to, was that the aircraft had six minutes remaining until he was cutting into his reserves. So, this is an area that we are looking into in some depth.

Mr. LEHMAN. Is the communications issue the only one that you are investigating or are there other aspects of this investigation of Avianca?

Mr. KOLSTAD. We are looking at flight planning, what kind of planning went on by the crew, by the company and by dispatch and, obviously, what impact weather may have had on the capacity of JFK that particular evening.

Mr. LEHMAN. In past years, have you identified accidents or incidents that were caused entirely or in part by language problems, particularly if the pilot spoke English as a second language? He may be speaking English, but he is thinking in Spanish or some other language, and he has to translate from his thinking language to his spoken language. Sometimes those words just do not come out in the same context as somebody that thinks and speaks in the same language.

Mr. KOLSTAD. Mr. Chairman, we have not specifically cited language problems as being causal or contributory, but we have had instances in which it has been a factor in the accident. One occurred in the Azores last year and another one involved a 747 in Malaysia in which there were some communication misunderstandings that we think took place.

TWO-MAN CREW

Mr. LEHMAN. You mentioned 747. I think the 747-400 reduces the flight deck crew from three to two.

Mr. KOLSTAD. The 747-400 reduces the flight crew from three to two, yes, sir.

Mr. LEHMAN. Is that a problem?

Mr. **Kolstad**. There is no suggestion that that is a problem.

UNITED AIRLINES/SIOUX CITY

Mr. **Lehman**. I believe the most serious U.S. air carrier accident during the past year was the United Airlines DC–10 accident in Sioux City, Iowa. Although you have not completed your report, you have issued several safety recommendations. What are the major safety issues involved in this accident and what has FAA's response been to the recommendations that you have issued?

Mr. **Kolstad**. The FAA has asked that McDonnell Douglas develop a backup system to prevent loss of flight control. They have issued a directive that all CF6–6 engines be inspected for defects that may be similar to the defect that led to the crash of United 232.

AIRLINE MAINTENANCE

Mr. **Lehman**. There continue to be accidents every year that raise the question of whether the airlines' maintenance practices and FAA's monitoring of these practices are adequate for the aging aircraft fleet. Are you satisfied that the airlines' maintenance programs are adequate to deal with their aging aircraft fleets?

Mr. **Kolstad**. Mr. Chairman, in general, they are adequate. We still are concerned with what we believe is an inadequate inspection force by the FAA to properly oversee the maintenance and inspection of older aircraft. We are also very concerned about the human factors aspects as they relate to maintenance. This was an issue that we believe existed with the Aloha accident.

Mr. **Lehman**. Sometimes I wonder whether the aging aircraft is as much a problem with airlines as the financial squeeze on airlines that causes them not only to be unable to replace these aging aircraft, but also affects part replacements and other aspects because the bottom line and safety are sometimes at cross-purposes.

Mr. **Kolstad**. You are absolutely right, Mr. Chairman. One thing, though, that the FAA is doing is keeping a closer watch on those companies that are in more serious financial condition. And we are overseeing that as well.

During the Eastern strike, for example, there was a greater oversight over that company's operations.

Mr. **Lehman**. We have other airlines, such as Pan American, in financial difficulties. We have Continental which has been a problem. And even TWA has had financial difficulties. If there is anything you want, for the record, to insert about your concerns in regards to the relationship between financial stability and safety, please feel free to do so.

Mr. **Kolstad**. I would certainly say that we are obviously more concerned when a carrier is in financial extremis because of the corners that may be cut in terms of inspection, part replacement and general oversight. And the tendency that might exist to operate aircraft that may be beyond their repair cycle.

COMMUTER AIRLINES

Mr. **Lehman**. Apparently, commuters must be doing better because, as you said, that is one of the brighter aspects of safety. Maybe they are in a better financial condition, also.

Mr. **Kolstad**. I think that is true, Mr. Chairman. Of course, it is difficult to find a commuter now that is not a code-sharing partner of a major carrier. And that has been a great help to their economic stability.

FAA SAFETY INSPECTORS

Mr. **Lehman**. We have provided a lot more safety inspections for FAA over the last several years. Do you think we have enough?

Mr. **Kolstad**. Well, we think they need more. They have been in the process of building up the inspector force over the past several years, but we think that that should continue and we understand that it is continuing.

Mr. **Lehman**. Any idea of how many to do the job right?

Mr. **Kolstad**. Their goal is 3,000 and we certainly do not disagree with that.

Mr. **Lehman**. That is how many more than they have now?

Mr. **Kolstad**. 2,400.

FAA INSPECTION PROGRAM

Mr. **Lehman**. The other part of this equation in regards to inspection is FAA's monitoring of industry maintenance policies and practices. In this regard, I recently received a letter from an individual who has been dealing with FAA for 30 years and his comment was that the FAA has lost its focus. He indicated that they, the FAA, recently spent six man days investigating his own operation and that they were totally concerned with records and paper. They never addressed the condition of the aircraft or the pilots. This is an issue we have discussed with your agency in the past. What has the Board found? Do you believe FAA has put too much emphasis on checking out only records and papers?

He had no problem with the people that were in his company, but he said 10 or 15 years ago these same people would go out there and look at the equipment. They did not even look at the equipment or did not talk to any of his pilots.

Mr. **Kolstad**. Yes, we have seen a problem in that area and they really need to do both. They need to do the record check; but they also need to do a spot check of the equipment. They have got to personally view the aircraft that are in the carrier's fleet. They need to pay particular attention, of course, to aircraft that are high cycle. There should be particular attention, of course, to whether or not the company has a corrosion control program and whether that program is effective.

Mr. **Lehman**. Have you made any recommendations to the FAA regarding their safety inspection program during the last 14 months? If so, what were they and how has FAA responded?

Mr. **Kolstad**. Well, following the Aloha accident, Mr. Chairman, we issued 17 safety recommendations to FAA. They have implemented recommendations that deal with the need for more hands-on inspections, the need for enhanced management training and the need for greater headquarters' involvement in the flight standards inspection program.

STATUS OF FAA SAFETY INSPECTION RECOMMENDATIONS

Mr. LEHMAN. Would you update for the record the status of the seven open recommendations on FAA's safety inspection program that were identified on pages 54 through 57 of last year's hearing record and include any new recommendations made during the past year?

[The information follows:]

An updated status of the seven safety recommendations listed relating to FAA safety inspection is below, followed by a computer printout of those recommendations.

Recommendation Number	Status last year	Current Status
A-84-133	OAA	OAA
A-85-96	OAA	OUA
A-86-91	OAA	OAA
A-87-110	OAA	OAA
A-88-50	OAA	CAA
A-88-97	OIRR	OUA
A-88-131	OIRR	CAA

NOTE:
OAA = Open--Acceptable Action
OIRR = Open--Initial Response Received
OUA = Open--Unacceptable Action
CAA = Closed--Acceptable Action

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-- AS OF 2/27/90 --

LOG NUMBER: 1696

ACCIDENT SYNOPSIS:

ON JANUARY 13, 1984, PILGRIM AIRLINES FLIGHT 35, A FOKKER F-27-100 (N148PM), CRASHED ON RUNWAY 4-L AT JOHN F. KENNEDY INTERNATIONAL AIRPORT, JAMAICA, NEW YORK, SHORTLY AFTER TAKEOFF. THE NTSB'S INVESTIGATION OF THE ACCIDENT IDENTIFIED SEVERAL CONDITIONS WHICH ADVERSELY AFFECTED THE POSTCRASH EVACUATION OF THE CREW AND PASSENGERS AND COULD HAVE LED TO FATALITIES. IN ADDITION, IT WAS FOUND THAT INFORMATION CONTAINED IN THE FLIGHT ATTENDANT'S MANUAL WAS IMPRECISE, INCOMPLETE, OR INAPPROPRIATE. THE SAFETY BOARD IS CONCERNED THAT THESE SAFETY HAZARDS WERE NOT UNCOVERED DURING THE FAA'S AIRWORTHINESS AND OPERATING CERTIFICATION INSPECTIONS OF THIS AIRPLANE IN CONNECTION WITH THE AIRPLANE BEING BROUGHT INTO U.S. REGISTRY ON OCTOBER 28, 1983. THE BOARD BELIEVES THAT FAA OPERATIONS AND MAINTENANCE INSPECTORS SHOULD INCREASE THEIR SURVEILLANCE AND REVIEW THEIR PROCEDURES TO BETTER IDENTIFY SIMILAR PROBLEMS WHICH MAY EXIST WITH OTHER F-27 AIRPLANES AND IN OTHER AIR CARRIER OPERATIONS.

RECOMMENDATION NUMBER: A-84-133
ISSUE DATE: 11/29/84
ADDRESSEE: FAA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ESTABLISH QUALITY ASSURANCE PROCEDURES TO ENSURE THAT AIR CARRIER OPERATIONS AND AIRWORTHINESS INSPECTIONS ADEQUATELY ADDRESS CABIN SAFETY ISSUES, SUCH AS CREW MEMBER TRAINING AND MANUALS, STORAGE OF HEAVY ITEMS INSIDE THE CABIN, STORAGE OF GALLEY SERVICE ITEMS, AND ACCESS TO EMERGENCY EXITS.

LOG NUMBER: 1848

ACCIDENT SYNOPSIS:

THE NATIONAL TRANSPORTATION SAFETY BOARD HAS HAD A LONG STANDING CONCERN THAT SOME PASSENGERS ONBOARD AIR CARRIER AIRPLANES HAVE CONTRIBUTED TO THEIR OWN INJURIES OR DEATHS BECAUSE THEY WERE NOT PREPARED TO RESPOND APPROPRIATELY TO EMERGENCIES. SAFETY BOARD ACCIDENTS REPORTS, SPECIAL STUDIES, AND RELATED SAFETY RECOMMENDATIONS HAVE SHOWN THAT PAST AND PRESENT MEANS OF CONVEYING INFORMATION ON THE USE OF SAFETY EQUIPMENT ARE NOT ENTIRELY EFFECTIVE. THE PREPARATION OF PASSENGERS FOR EMERGENCIES DEPENDS MAINLY ON FLIGHT ATTENDANT ORAL BRIEFINGS AND DEMONSTRATIONS BEFORE TAKEOFF, THE INFORMATION CONTAINED ON THE PRINTED BRIEFING CARDS, VIDEOTAPED SAFETY BRIEFINGS, AND OTHER INSTRUCTIONS, SOMETIMES GIVEN UNDER THE DURESS OF THE EMERGENCY ITSELF.

RECOMMENDATION NUMBER: A-85-096
ISSUE DATE: 12/17/85
ADDRESSEE: FAA
STATUS: OPEN - UNACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REVISE, BASED ON THE RESULTS OF TESTING OF PASSENGER COMPREHENSION OF SAFETY INFORMATION AND PERFORMANCE OF EMERGENCY PROCEDURES, AIR CARRIER OPERATIONS HANDBOOKS AND BULLETINS AND AIR CARRIER INSPECTION TRAINING PROGRAMS TO INCLUDE INSTRUCTION TO PREPARE FAA INSPECTORS TO PROVIDE BETTER GUIDANCE TO AIRLINES WHEN ASSISTING THEM IN IMPROVING THE CONTENT AND PRESENTATION OF PASSENGER SAFETY INFORMATION TO THEIR PASSENGERS.

LOG NUMBER: 1910E

ACCIDENT SYNOPSIS:

ON AUGUST 2, 1985, AT 1805:52 CENTRAL DAYLIGHT TIME, DELTA AIR LINES (DELTA) FLIGHT 191, A LOCKHEED L-1011-385-1, N726DA, CRASHED WHILE APPROACHING TO LAND ON RUNWAY 17L AT THE DALLAS/FORT WORTH INTERNATIONAL (DFW) AIRPORT, TEXAS. WHILE PASSING THROUGH THE RAIN SHAFT BENEATH A THUNDERSTORM, FLIGHT 191 ENTERED A MICROBURST WHICH THE PILOT WAS UNABLE TO TRAVERSE SUCCESSFULLY. THE AIRPLANE STRUCK THE GROUND ABOUT 6,300 FEET NORTH OF THE APPROACH END OF RUNWAY 17L, HIT A CAR ON A HIGHWAY NORTH OF THE RUNWAY KILLING THE DRIVER, STRUCK TWO WATER TANKS ON THE AIRPORT, AND BROKE APART. EXCEPT FOR A SECTION OF THE AIRPLANE CONTAINING THE AFT FUSELAGE AND EMPENNAGE, THE REMAINDER OF THE AIRPLANE DISINTEGRATED DURING THE IMPACT SEQUENCE, AND A SEVERE FIRE ERUPTED DURING THE IMPACT SEQUENCE. OF THE 163 PERSONS ABOARD, 134 PASSENGERS AND CREWMEMBERS WERE KILLED; 26 PASSENGERS AND 3 CABIN ATTENDANTS SURVIVED.

RECOMMENDATION NUMBER: A-86-091
ISSUE DATE: 9/03/86
ADDRESSEE: FAA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REQUIRE AIRPORT CERTIFICATION INSPECTORS TO CONDUCT COMMUNICATIONS TESTS IN ACCORDANCE WITH FEDERAL AVIATION ADMINISTRATION GUIDELINES FOR EMERGENCY PLAN NOTIFICATION PROCEDURES OF MUTUAL-AID AGENCIES AS PART OF THE ANNUAL AIRPORT CERTIFICATION INSPECTION AND TO EVALUATE THE TIMELINESS AND EFFECTIVENESS OF THOSE NOTIFICATION PROCEDURES.

LOG NUMBER: 2014

ACCIDENT SYNOPSIS:

ON OCTOBER 25, 1986, PIEDMONT AIRLINES FLIGHT 467, A BOEING 737-222, N752N, WAS A REGULARLY SCHEDULED FLIGHT OPERATING UNDER 14 CFR 121 FROM NEWARK INTERNATIONAL AIRPORT TO MYRTLE BEACH, SOUTH CAROLINA, WITH AN EN ROUTE STOP AT CHARLOTTE DOUGLAS INTERNATIONAL AIRPORT, CHARLOTTE, NORTH CAROLINA. THERE WERE 114 PASSENGERS AND 5 CREWMEMBERS ON BOARD. THE FLIGHT WAS ROUTINE UNTIL ITS ARRIVAL INTO THE CHARLOTTE AREA, WHERE INSTRUMENT METEOROLOGICAL CONDITIONS PREVAILED. AT 2004:17, THE FLIGHT WAS CLEARED FOR THE INSTRUMENT LANDING SYSTEM APPROACH (ILS) TO RUNWAY 36R. THE AIRPLANE TOUCHED DOWN AT 2007:19 AND ABOUT 2007:43 IT DEPARTED THE RUNWAY. THE AIRPLANE STRUCK THE LOCALIZER ANTENNA ARRAY LOCATED ABOUT 300 FEET FROM THE DEPARTURE END OF THE RUNWAY, STRUCK A CONCRETE CULVERT LOCATED 18 FEET BEYOND THE LOCALIZER, AND CONTINUED THROUGH A CHAIN LINK FENCE. IT CAME TO

RECOMMENDATION NUMBER: A-87-110
ISSUE DATE: 10/13/87
ADDRESSEE: FAA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: DURING ANNUAL INSPECTIONS OF FULL CERTIFICATE AIRPORT, EMPHASIZE THE IDENTIFICATION OF DEFICIENT RUNWAY CONDITIONS AND USE APPROVED FRICTION-MEASURING DEVICES TO MEASURE THE DRY RUNWAY COEFFICIENTS OF FRICTION; ENCOURAGE THE AIRPORT OPERATOR TO CORRECT (OR PROVIDE APPROPRIATE NOTICE TO USERS) RUNWAY CONDITIONS THAT DO NOT MEET THE CRITERIA RECOMMENDED IN ADVISORY CIRCULAR 150/5320-12A.

REST UPON THE EDGE OF RAILROAD TRACKS LOCATED 440 FEET FROM THE DEPARTURE END OF THE RUNWAY. THE AIRPLANE WAS DESTROYED, 3 PASSENGERS SUSTAINED SERIOUS INJURIES, AND 3 CREWMEMBERS AND 28 PASSENGERS SUSTAINED MINOR INJURIES IN THE ACCIDENT.

LOG NUMBER: 2029

ACCIDENT SYNOPSIS:

ON NOVEMBER 1, 1987, AT LONDON'S HEATHROW AIRPORT, THE FLIGHTCREW OF BRITISH AIRWAYS FLIGHT 293, A BOEING 747-136, HEARD A LOUD BANG AS THEY INCREASED THRUST FOR TAKEOFF WITH THE BRAKES SET. ENGINE PARAMETERS WERE NORMAL AND THE TAKEOFF WAS CONTINUED. NO ABNORMAL INDICATIONS WERE ENCOUNTERED DURING THE TAKEOFF, CLIMB, OR DURING FLAP RETRACTION. AT APPROXIMATELY 5,000 FEET A STEWARD REPORTED THAT A WING PANEL WAS DAMAGED ON THE LEFT WING FORWARD OF THE INBOARD SPOILER. THE FLIGHTCREW JETTISONED FUEL AND RETURNED TO LONDON WHERE A NORMAL LANDING WAS MADE. THE CREW REPORTED THAT NO ABNORMAL HANDLING QUALITIES EXISTED ON THE RETURN FLIGHT.

RECOMMENDATION NUMBER: A-88-050
ISSUE DATE: 4/04/88
ADDRESSEE: FAA
STATUS: CLOSED - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ISSUE AN AIRWORTHINESS DIRECTIVE TO REQUIRE ULTRASONIC INSPECTION OF THE WING LANDING GEAR SUPPORT BEAM FITTINGS ON ALL BOEING 747 AIRPLANES AT AN APPROPRIATE INSPECTION THRESHOLD TIME INTERVAL. REPAIR OF CRACKED OR CORRODED FITTINGS FOUND DURING THE INSPECTION SHOULD INCORPORATE INCREASED CORROSION PROTECTION MEASURES UPON REASSEMBLY OF THE FITTING.

LOG NUMBER: 2099

ACCIDENT SYNOPSIS:

ON MARCH 4, 1987, FISCHER BROS. AVIATION, INC., DOING BUSINESS AS NORTHWEST AIRLINK, FLIGHT 2268, A CONSTRUCCIONES AERONAUTICAS, S.A. (CASA) C-212-CC, N160FB, CRASHED JUST INSIDE THE THRESHOLD OF RUNWAY 21R AT THE DETROIT METROPOLITAN WAYNE COUNTY AIRPORT IN ROMULUS, MICHIGAN. NINE OF THE 19 PERSONS ON BOARD WERE KILLED. THE AIRPLANE WAS DESTROYED BY IMPACT FORCES AND POSTCRASH FIRE.
ON MAY 8, 1987, EXECUTIVE AIR CHARTER, INC., DOING BUSINESS AS AMERICAN EAGLE, FLIGHT 5452, A CASA C-212-CC, CRASHED SHORT OF RUNWAY 9 WHILE ON A VISUAL APPROACH TO THE AIRPORT AT MAYAGUEZ, PUERTO RICO, IN VISUAL METEOROLOGICAL CONDITIONS. BOTH CREWMEMBERS WERE KILLED AND THE FOUR PASSENGERS SUSTAINED MINOR INJURIES. THE AIRPLANE WAS DESTROYED BY IMPACT FORCES AND POSTCRASH FIRE.

RECOMMENDATION NUMBER: A-88-097
ISSUE DATE: 10/17/88
ADDRESSEE: FAA
STATUS: OPEN - UNACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: CONDUCT A SPECIAL SURVEILLANCE INSPECTION OF APPROVED HARTZELL PROPELLER OVERHAUL FACILITIES AND OF OTHER PROPELLER MANUFACTURER OVERHAUL FACILITIES AS SERVICE DIFFICULTY HISTORICAL DATA AND EXPERIENCE DICTATE TO DETERMINE THAT THE PROPER QUALITY CONTROL ORGANIZATION AND PROCEDURES ARE IN PLACE AND ARE BEING FOLLOWED.

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LOG NUMBER: 2089

ACCIDENT SYNOPSIS:

ON MAY 9, 1988, A BRITISH AIRWAYS BOEING 747-136 AIRPLANE EXPERIENCED AN IN-FLIGHT STRUCTURAL FAILURE OF THE OUTBOARD TRACK OF THE LEFT INBOARD FLAP (NO. 3 FLAP TRACK--A STRUCTURE TO SUPPORT AND GUIDE THE FLAP) WHILE ON FINAL APPROACH TO CHICAGO O'HARE INTERNATIONAL AIRPORT, CHICAGO, ILLINOIS. THE SAFETY BOARD'S CONTINUING INVESTIGATION REVEALED THAT THE CAPTAIN WAS FLYING A COUPLED AUTOPILOT APPROACH AND HAD SELECTED 30 DEGREE FLAPS AT 1,500 FEET ABOVE GROUND LEVEL (AGL) FOR THE FINAL LANDING CONFIGURATION. AT 1,200 FEET AGL, APPROXIMATELY 30 SECONDS AFTER FINAL FLAP SELECTION, A 'LARGE BUMP' WAS FELT FOLLOWED BY A SEVERE LEFT YAW AND MODERATE LEFT ROLL WHICH THE AUTOPILOT WAS UNABLE TO CONTROL. THE CAPTAIN DISENGAGED THE AUTOPILOT, REGAINED CONTROL OF THE AIRCRAFT, AND MANUALLY FLEW THE APPROACH TO AN UNEVENTFUL LANDING. THERE WERE NO INJURIES TO THE 18 CREWMEMBERS OR 286 PASSENGERS. THE AIRCRAFT SUSTAINED EXTENSIVE STRUCTURAL DAMAGE TO THE LEFT INBOARD FLAPS, THE TWO INBOARD SPOILERS, THE SPOILER SUPPORT BEAM, THE FLAP TRACK ATTACHMENT POINT ON THE AFT WING SPAR, AND VARIOUS UPPER AND LOWER WING SURFACE PANELS. IN ADDITION, A PUNCTURE IN THE FUSELAGE WAS FOUND ABOVE AND BEHIND THE AFT ENTRY DOOR. THE FLAP TRACK WAS FRACTURED COMPLETELY JUST AFT OF THE FORWARD ATTACHMENT POINT. AT THE REAR ATTACHMENT POINT, THE INBOARD BOLT FAILED, AND THE OUTBOARD BOLT WAS BENT OUTWARD 45 DEGREES.

RECOMMENDATION NUMBER: A-88-131
ISSUE DATE: 9/30/88
ADDRESSEE: FAA
STATUS: CLOSED - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: FOR BOEING 747 AIRPLANES WITH THE EARLY PRODUCTION FLAP TRACKS, REQUIRE A MAGNIFIED VISUAL OR OTHER NONDESTRUCTIVE INSPECTION, WITHIN 20 FLIGHT CYCLES OF ANY PREVIOUS INSPECTION, OF THE FORWARD BOLT HOLE BORES OF THE INBOARD FLAP TRACKS FOR CORROSION PITTING AND CRACKS USING DAMAGE TOLERANCE CRITERIA DEVISED BY BOEING, AND ESTABLISH PERIODIC INSPECTION INTERVALS FOR THE BOLT HOLE BORES CONSISTENT WITH EARLY DETECTION OF CORROSION PITTING IN THE BORES.

GANDER AVIATION ACCIDENT

Mr. LEHMAN. There have been some questions raised about the adequacy of the Gander accident investigation. Would you briefly summarize the cause, the role your agency played in the investigation and your position on the adequacy and the conclusions of the investigation?

Mr. KOLSTAD. Yes, sir. The Canadian Aviation Safety Board found that the cause of the accident was that it experienced a stall at low altitude, most probably from ice contamination on the leading edges in the upper surfaces of the wings. Our staff participated in this investigation both on scene and following the accident. They found the Canadian Aviation Safety Board's investigation to be comprehensive, objective, and complete. The staff has not changed their opinion.

Mr. LEHMAN. That flight originated in Beirut?

Mr. KOLSTAD. Egypt, I am told. Egypt, sir.

Mr. LEHMAN. Egypt. That is right. Has the origin of the flight, the fact that it came from a tumultuous part of the world, given you any concern as far as the cause?

Mr. KOLSTAD. I believe that that was looked into, but staff did not find any evidence to disagree with the finding of the Canadian Aviation Safety Board.

COMMUTER AIRLINE SAFETY

Mr. LEHMAN. Last year you indicated that although the 1988 accident rate for commuter airlines was down, pilot training remained a problem. What happened in 1989—were there reductions in commuter airline accidents and fatalities and what is your assessment of the industry's safety record? You have already answered part of that question.

Mr. KOLSTAD. Yes. The number of accidents decreased from 19 in 1988 to 18 in 1989, but the number of fatal accidents increased from two to five during the same period.

Mr. LEHMAN. According to your budget justifications, the commuter accidents and incidents that continue to occur share the same operational deficiencies that have been documented by Board investigations for over a decade. What do you believe needs to be done to address these continuing deficiencies?

COMMUTER PILOT TRAINING

Mr. KOLSTAD. We think that there's still a problem, Mr. Chairman, in the area of commuter pilot training. The commuters face a particularly high pilot turn over rate. The problem is that commuter pilots hire on with a commuter, gain time, and then leave and go to a major. And this forces the commuter to incur particularly high training costs and, of course, it is not an enhancement to safety to have such a high turnover rate. So we're continually concerned about it.

As a matter of fact, in our commuter workshop on November 29, 1989 we addressed the issue of commuter pilot training and what could be done. Some of the ideas that were discussed were incentive programs to provide some sort of a contractual arrangement in which the commuter carrier would guarantee employment if the pilot were to stay with a commuter airline for some stipulated period of time; and the major would then hire them at some later date. Some method, in other words, of providing more stability among the pilot work force of the commuter.

Mr. **Lehman**. Maybe if we get into high-speed rail we wouldn't have this commuter problem. Maybe in your next life.

Mr. **Kolstad**. Right. Right, sir.

ALOHA ISLAND AIR AVIATION ACCIDENT

Mr. **Lehman**. The October 28, 1989, Aloha Island Air accident seems to have raised some of these problem areas. What is the status of your investigation of this accident and what have you learned to date?

[The information follows:]

The investigators have completed their on-sight activities. Preliminary information indicates that the crew may have attempted to maintain visual flight during instrument meteorological conditions and flew into the side of a cliff. The Safety Board is pursuing issues related to pilot training, flight control and dispatch, and FAA oversight of these areas in its surveillance of the airline.

COMMUTER SAFETY WORKSHOP

Mr. **Lehman**. Did you make any recommendations as a result of your November 29, 1989, commuter safety workshop? For example, are there areas where you believe FAA should increase its monitoring of commuter airlines?

[The information follows:]

The Safety Board made no safety recommendations as a result of the commuter safety workshop, but we exchanged considerable information with the workshop participants as I previously mentioned.

ALCOHOL AND DRUGS

Mr. **Lehman**. Last March, you issued several recommendations as a result of your investigation of a 1988 commuter airline crash in Durango, Colorado. You considered that cocaine use by the pilot was a factor. Was this an unusual situation or are drugs and alcohol playing a more significant role in such accidents?

Mr. **Kolstad**. Mr. Chairman, we have not found drugs in any other scheduled air carrier accident. So I would say at this point, it certainly is unique.

FLIGHT CREW PRESSURES

Mr. **Lehman**. In your April 1989 report on the crash in Cary, North Carolina, you indicated that the pilot's physical condition may have contributed to the accident and you recommended that FAA convene a Government/industry group to examine issues related to air carrier sick leave policies for pilots. To what extent do you believe pilots are being pressured to fly when they're not well?

Mr. **Kolstad**. Mr. Chairman, we had two accidents in which we think there is at least a suggestion that the flight crews may have been induced or been pressured to fly when they were sick.

Mr. **Lehman**. What action has FAA taken? You made a recommendation. Has the FAA paid any attention to it?

Mr. **Kampschror**. Mr. Chairman, they rejected one of our recommendations to convene an industry task force to review sick leave policies, but they're considering an NPRM on our recommendation to have the air carrier equally responsible for the pilot's medical condition before they could use them.

Mr. **Lehman**. Why did they reject your recommendation?

Mr. **Kampschror**. They said basically that sick leave policies were a labor-management issue and they did not wish to address those issues.

Mr. **Lehman**. The thing about that 747-400 flight—two pilots and 500 people—are they served meals? That is one reason for a possible illness either intentionally or accidentally. Are they served meals from the same source on these long flights?

Mr. **Kolstad**. I'm not sure I know the answer to that, Mr. Chairman.

Mr. **Lehman**. Should they be?

Mr. **Kampschror**. Generally speaking, the flight crews eat from the same kitchen, but they do eat different meals.

Mr. **Lehman**. They do?

Mr. **Kampschror**. They do not eat all of the same type of meals that are served.

NATIONAL DRIVER REGISTER

Mr. **Lehman**. Last May, FAA published a notice of proposed rulemaking that would facilitate FAA access to the National Driver Register. Were you satisfied with FAA's NPRM and do you know the status of this rulemaking?

Mr. **Kolstad**. Yes, Mr. Chairman. This was in response to a recommendation that we made in 1983 and the FAA now seems to be moving forward in a methodical way. We believe that the final rule is expected to be sent to the office of the Secretary and OMB for final clearance in May of this year.

Mr. **Lehman**. And that way they would know how many, if any, DUI charges have been brought against any particular pilot, right?

Mr. **Kolstad**. Correct.

AIRPORT INSPECTION PROGRAM

Mr. **Lehman**. Last month, it was reported that the Board believed FAA should improve it's airport inspection program. What problems did you find with FAA's airport inspection program as a result of the Grand Canyon Airlines accident investigation?

Mr. **Kolstad**. We found some serious problems with respect to their crash-fire-rescue operations. We asked that the FAA conduct an airport certification inspection of this facility, and we also asked for an improvement of management oversight and supervision of airport safety inspectors.

We also issued recommendations to the Arizona Department of Transportation in the areas of emergency electrical generators and communications and alternate telephone systems. We haven't received a response to those recommendations.

AIR TRAFFIC CONTROL REVIEW

Mr. **Lehman**. The review you've been doing over the last two years of air traffic incidents—what's the status of this review?

Mr. KOLSTAD. We are continuing this investigation of selected air traffic control operational air and pilot deviation incidents. We have a process by which we detect operational errors that are made by the various facilities and then we send what I call SWAT teams where we see the margin of error reaching dangerous levels.

We've done that on numerous occasions including the northeast corridor, Coast TRACON, and the Chicago O'Hare facility.

Mr. LEHMAN. What are the problems they're trying to contend with?

Mr. KOLSTAD. We're trying to uncover why, for example, you would have several operational errors in a six-month time period in a specific facility. For example, Coast TRACON—we had a situation there where we had double the number of operational errors in six months than we had in the previous full twelve months. We went in there to try to determine why that was occurring.

We conducted interviews, we looked at the facility, we looked at the equipment. We made a number of recommendations regarding the amount of space that existed for these people and the amount of training that they had received and questioned whether or not the facility was undermanned. We made recommendations to increase the number of fully proficient controllers and to increase the amount of space.

The FAA has accepted our recommendations, and they have already established a new site for a consolidated facility at Miramar Naval Air Station.

Mr. LEHMAN. Well, the FAA listens sometimes, does it?

Mr. KOLSTAD. Yes, sir.

Mr. LEHMAN. Since the controllers' strike, the Board has closely monitored the operations of the air traffic control system. What is your assessment of the safety of this system?

Mr. KOLSTAD. Mr. Chairman, I think that the U.S. air traffic control system is the best and the safest in the world.

Mr. LEHMAN. And compared to before the strike?

Mr. KOLSTAD. I think it's excellent and getting better.

Mr. LEHMAN. Is it better than it was before the strike? Take the Fifth.

Mr. KOLSTAD. Yes.

Mr. LEHMAN. How effective is FAA's flow control system in preventing individual controllers from getting overloaded?

Mr. KOLSTAD. The aircraft situation display system that the FAA and the monitor alert system that they put into place has greatly increased their ability to smooth the flow of traffic. The FAA can now predict in advance when a particular facility is going to be reaching its capacity at any particular hour.

NORTHEAST CORRIDOR

Mr. LEHMAN. Last year, it was indicated that you had recommended FAA conduct a safety and efficiency review of the high traffic density in the northeast corridor. What was FAA's response?

Mr. KOLSTAD. The FAA completed this system safety review and it confirmed many of the findings of the Safety Board. It also identified numerous other problems and deficiencies. The review, made

157 recommendations for improvement. Most of these had to do with communications, training, staffing and procedures.

AIR TRAFFIC CONTROL

Mr. **Lehman.** Last year, you indicated you did not believe there were enough—and I think you've practically answered this—FPL's in the TRACON's. To what extent, if at all, do you believe the situation has improved?

Mr. **Kolstad.** I think they've made some dramatic improvements at Coast TRACON. They increased the number of FPL's and I think that the pay demonstration program which FAA put into place was a great help there and at other facilities around the country, in both recruiting controllers and enabling them to retain the controllers that they have.

Mr. **Lehman.** Have you made any recommendations on FAA's air traffic controller training program over the last year?

Mr. **Kolstad.** We haven't made any generic recommendations, but we have addressed the controller training problem as part of the safety recommendations that we issued to the FAA concerning Coast TRACON.

AIR TRAFFIC CONTROLLER TRAINING

Mr. **Lehman.** Would you update for the record the status of the 15 safety recommendations related to controller training that were included on pages 110 through 116 of last year's hearing record and include any recommendations made during the past year?

[The information follows:]

An updated status of the fifteen safety recommendations listed relating to FAA air traffic controller training is below, followed by a computer printout of those recommendations.

Recommendation Number	Status last year	Current Status
A-81-156	OAA	CUA
A-82-149	OAAA	CAA
A-83-22	OAA	OAA
A-86-30	OUA	OAA
A-86-31	OUA	OUA
A-86-32	OUA	OAA
A-86-38	OAA	CAAA
A-86-73	OAA	CAA
A-88-25	OAA	CAA
A-88-26	OAA	OAA
A-88-46	OAA	OAA
A-88-81	OIRR	CAA
A-88-85	OIRR	OUA
A-88-91	OIRR	CAA
A-88-157	OAA	CAA

NOTE:
OAA = Open--Acceptable Action
OIRR = Open--Initial Response Received
OUA = Open--Unacceptable Action
CAA = Closed--Acceptable Action
CAAA = Closed--Acceptable Alternate Action
CUA = Closed--Unacceptable Action

Computer listings similar to last year are attached for information.

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LOG NUMBER: 1409

ACCIDENT SYNOPSIS:

ON AUGUST 18, 1981, THE NTSB BEGAN A SPECIAL INVESTIGATION OF THE AIR TRAFFIC CONTROL (ATC) SYSTEM OF THE UNITED STATES (SPECIAL INVESTIGATION REPORT--"AIR TRAFFIC CONTROL SYSTEM", NTSB-SIR-81-7). THE SAFETY BOARD CONDUCTED IN-DEPTH STUDIES OF 45 ATC FACILITIES TO OBSERVE THE OPERATION OF THE ATC SYSTEM UNDER THE REDUCED CONTROLLER WORKFORCE LEVELS. ABOUT 220 CONTROLLERS AND SUPERVISORS WERE INTERVIEWED IN THE ATC FACILITIES. ADDITIONALLY, THE SAFETY BOARD ANALYZED THE FEDERAL AVIATION ADMINISTRATION PROGRAM FOR THE TRAINING OF REPLACEMENT CONTROLLERS, FOR THE MANAGEMENT OF THE CURRENT CONTROLLER WORKFORCE, AND FOR PROGRAMS TO DETECT AND CONTROL STRESS AND FATIGUE IN THE CONTROLLER POPULATION.

RECOMMENDATION NUMBER: A-81-156
ISSUE DATE: 12/10/81
ADDRESSEE: FAA
STATUS: CLOSED - UNACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ESTABLISH A PERIODIC FORMAL EVALUATION PROCESS TO MONITOR THE STANDARDIZATION OF ATC PRACTICES AND PROFICIENCY OF CONTROLLERS UTILIZING A FACILITY'S STAFF SPECIALISTS AS WELL AS FIRST-LINE SUPERVISORS.

LOG NUMBER: 1552

ACCIDENT SYNOPSIS:

THE NATIONAL TRANSPORTATION SAFETY BOARD BEGAN A FOLLOWUP SPECIAL INVESTIGATION OF THE AIR TRAFFIC CONTROL (ATC) SYSTEM OF THE UNITED STATES ON OCTOBER 1, 1982. THE PURPOSE OF THIS INVESTIGATION IS TO EVALUATE THE SAFETY OF THE ATC SYSTEM AT A LATER POINT IN ITS REBUILDING PHASE FOLLOWING THE CONTROLLER'S STRIKE OF AUGUST 3, 1981. THE INVESTIGATION HAS INVOLVED SURVEYING 50 ATC FACILITIES, INCLUDING 16 AIR ROUTE TRAFFIC CONTROL CENTERS (ARTCC'S) AND 34 TERMINAL RADAR AND NON-RADAR FACILITIES, AND INTERVIEWING ABOUT 350 FACILITY MANAGERS, STAFF, CONTROLLERS, CONTROLLER TRAINEES, AND MILITARY CONTROLLERS TEMPORARILY ASSIGNED TO THE FEDERAL AVIATION ADMINISTRATION (FAA). SAFETY BOARD INVESTIGATORS HAVE OBSERVED ATC OPERATIONS AT THE FACILITIES, WHILE RIDING IN THE COCKPITS OF COMMERCIAL AIRLINES, AND WHILE FLYING AIRPLANES WITHIN THE SYSTEM.

RECOMMENDATION NUMBER: A-82-149
ISSUE DATE: 12/20/82
ADDRESSEE: FAA
STATUS: CLOSED - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: DEVELOP AND ADOPT THE TEAM-ASSIGNED EVALUATIONS, PROFICIENCY AND PROCEDURES SPECIALIST CONCEPT, BASED ON THAT IN USE AT THE LAGUARDIA TOWER, OR A SIMILAR CONCEPT, IN PLACE OF THE EXISTING STAFF-ASSIGNED EVALUATIONS, PROFICIENCY AND DEVELOPMENT SPECIALIST/PLANNING AND PROCEDURES SPECIALIST CONCEPT IN USE AT APPROPRIATE AIR TRAFFIC CONTROL FACILITIES.

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LOG NUMBER: 1547

ACCIDENT SYNOPSIS:

ON JULY 9, 1982, PAN AMERICAN WORLD AIRWAYS FLIGHT 759 CRASHED AFTER TAKING OFF FROM RUNWAY 10 AT NEW ORLEANS INTERNATIONAL AIRPORT, KENNER, LOUISIANA. WHEN FLIGHT 759 TOOK OFF, THERE WERE ISOLATED HEAVY SHOWERS OVER THE AIRPORT AND TO THE EAST OF THE AIRPORT ALONG THE AIRPLANE'S INTENDED DEPARTURE PATH. LOW LEVEL WIND SHEAR CONDITIONS HAD BEEN DETECTED BY THE AIRPORT'S LOW LEVEL WIND SHEAR ALERT SYSTEM (LLWSAS), AND THE SYSTEM HAD ALARMED SEVERAL TIMES, THE LAST TIME ABOUT 4 MINUTES BEFORE FLIGHT 759'S TAKEOFF. THE SYSTEM WAS NOT ALARMING AT THE TIME THE TAKEOFF CLEARANCE WAS ISSUED; HOWEVER, A WIND SHEAR ADVISORY WAS BROADCAST 2 SECONDS AFTER THE ACCIDENT.

RECOMMENDATION NUMBER: A-83-022
ISSUE DATE: 3/25/83
ADDRESSEE: FAA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: AS THE DATA OBTAINED FROM THE JOINT AIRPORT WEATHER STUDIES (JAWS) PROJECT BECOME AVAILABLE (1) DEVELOP TRAINING AIDS FOR PILOTS AND CONTROLLERS TO EMPHASIZE THE HAZARDS TO FLIGHT FROM CONVECTIVE WEATHER ACTIVITY, (2) DEVELOP REALISTIC MICROBURST WIND MODELS FOR INCORPORATION INTO PILOT FLIGHT SIMULATOR TRAINING PROGRAMS, AND (3) PROMOTE THE DEVELOPMENT OF AIRBORNE WIND SHEAR DETECTION DEVICES.

LOG NUMBER: 1890

ACCIDENT SYNOPSIS:

THE COLLISION OF TWO AIRPLANES OPERATING ON OR NEAR THE SAME RUNWAY AT AN AIRPORT PRESENTS THE POTENTIAL FOR TREMENDOUS LOSS OF LIFE. THE COLLISION OF TWO BOEING 747'S ON A RUNWAY AT THE TENERIFE, CANARY ISLANDS, SPAIN, AIRPORT ON MARCH 27, 1977, CAUSED 583 FATALITIES--MORE FATALITIES THAN IN ANY OTHER ACCIDENT IN THE HISTORY OF AVIATION. FORTUNATELY, THERE HAVE BEEN FEW SUCH GROUND COLLISION ACCIDENTS. HOWEVER, THERE HAVE BEEN MANY CLOSE ENCOUNTERS, AND THE NUMBER OF REPORTED NEAR-COLLISION GROUND INCIDENTS HAS INCREASED SIGNIFICANTLY IN THE PAST 2 YEARS.

RECOMMENDATION NUMBER: A-86-030
ISSUE DATE: 5/13/86
ADDRESSEE: FAA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REVISE THE CURRENT TOWER TRAINING CURRICULUM AT THE ATC ACADEMY TO INCLUDE MORE EMPHASIS ON PRACTICAL STANDARDIZED 'HANDS-ON' TOWER TRAINING USING DYNAMIC LABORATORY AND SIMULATION FACILITIES.

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-- AS OF [illegible] --

RECOMMENDATION NUMBER: A-86-031
ISSUE DATE: 5/13/86
ADDRESSEE: FAA
STATUS: OPEN - UNACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ESTABLISH A PROGRAM FOR IMPROVED SUPERVISION OF TOWER CONTROLLER PERFORMANCE IN WHICH STANDARD COORDINATION AND USE OF PROPER PHRASEOLOGY IS EMPHASIZED AND WHICH INCLUDES RETRAINING OF CONTROLLERS WHO ARE DEFICIENT.

RECOMMENDATION NUMBER: A-86-032
ISSUE DATE: 5/13/86
ADDRESSEE: FAA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ESTABLISH AN AD HOC TASK FORCE, INCLUDING CONTROLLER AND HUMAN PERFORMANCE EXPERTISE, TO DEVELOP EFFECTIVE MEMORY AIDS THAT WOULD REDUCE INCIDENTS OF AIR TRAFFIC CONTROLLERS FORGETTING TRAFFIC, AND TO INCORPORATE A DESCRIPTION OF THESE MEMORY AIDS AND HOW THEY SHOULD BE USED IN THE ATC ACADEMY CONTROLLER TRAINING SYLLABUS AND IN THE TOWER FACILITY TRAINING PROGRAM.

RECOMMENDATION NUMBER: A-86-038
ISSUE DATE: 5/13/86
ADDRESSEE: FAA
STATUS: CLOSED - ACCEPTABLE ALTERNATE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ISSUE AN ADVISORY CIRCULAR DELINEATING BOTH THE PILOT AND CONTROLLER ROLES AND RESPONSIBILITIES IN THE PREVENTION OF RUNWAY INCURSION INCIDENTS.

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LOG NUMBER: 1910

ACCIDENT SYNOPSIS:

ON AUGUST 2, 1985, AT 1805:52 CENTRAL DAYLIGHT TIME, DELTA AIR LINES (DELTA) FLIGHT 191, A LOCKHEED L-1011-385-1, N726DA, CRASHED WHILE APPROACHING TO LAND ON RUNWAY 17L AT THE DALLAS/FORT WORTH INTERNATIONAL (DFW) AIRPORT, TEXAS. WHILE PASSING THROUGH THE RAIN SHAFT BENEATH A THUNDERSTORM, FLIGHT 191 ENTERED A MICROBURST WHICH THE PILOT WAS UNABLE TO TRAVERSE SUCCESSFULLY. THE AIRPLANE STRUCK THE GROUND ABOUT 6,300 FEET NORTH OF THE APPROACH END OF RUNWAY 17L, HIT A CAR ON A HIGHWAY NORTH OF THE RUNWAY KILLING THE DRIVER, STRUCK TWO WATER TANKS ON THE AIRPORT, AND BROKE APART. EXCEPT FOR A SECTION OF THE AIRPLANE CONTAINING THE AFT FUSELAGE AND EMPENNAGE, THE REMAINDER OF THE AIRPLANE DISINTEGRATED DURING THE IMPACT SEQUENCE, AND A SEVERE FIRE ERUPTED DURING THE IMPACT SEQUENCE. OF THE 163 PERSONS ABOARD, 134 PASSENGERS AND CREWMEMBERS WERE KILLED; 26 PASSENGERS AND 3 CABIN ATTENDANTS SURVIVED.

RECOMMENDATION NUMBER: A-86-073
ISSUE DATE: 9/03/86
ADDRESSEE: FAA
STATUS: CLOSED - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: DEVELOP A THOROUGH CONVECTIVE WEATHER REFRESHER COURSE AS PART OF RECURRING TRAINING FOR ALL PERSONNEL ACTIVELY ENGAGED IN THE CONTROL OF AIR TRAFFIC.

LOG NUMBER: 2037

ACCIDENT SYNOPSIS:

ON JANUARY 20, 1987, ABOUT 1228, CENTRAL STANDARD TIME, A U.S. ARMY BEECH U-21A AIRPLANE, ARMY 18061, AND A SACHS ELECTRIC COMPANY PIPER PA-31-350, N60SE, COLLIDED AT 7,000 FEET M.S.L. OVER THE LAKE CITY ARMY AMMUNITION PLANT, INDEPENDENCE, MISSOURI, ABOUT 5 MILES EAST OF THE EASTERN BOUNDARY OF THE KANSAS CITY TERMINAL CONTROL AREA. THE U-21 WAS LEVEL AT 7,000 AND EN ROUTE TO FORT LEAVENWORTH, KANSAS, IN ACCORDANCE WITH INSTRUMENT FLIGHT RULES (IFR). THE PA-31 WAS CLIMBING EASTBOUND TO AN UNKNOWN CRUISE ALTITUDE, HAVING DEPARTED THE KANSAS CITY DOWNTOWN AIRPORT IN ACCORDANCE WITH VISUAL FLIGHT RULES (VFR), EN ROUTE TO ST. LOUIS, MISSOURI. THE AIRPLANES COLLIDED NEARLY HEAD-ON IN DAYLIGHT AND VISUAL METEOROLOGICAL CONDITIONS. ALTHOUGH BOTH AIRPLANES WERE EQUIPPED WITH OPERATING MODE-C TRANSPONDERS, THE RADAR CONTROLLERS IN COMMUNIATION WITH THE U-21 DID NOT OBSERVE AND WERE NOT ALERTED TO THE CONFLICT. THEREFORE, TRAFFIC ADVISORIES WERE NOT PROVIDED. AS A RESULT OF THE ACCIDENT, TWO PILOTS AND ONE PASSENGER ABOARD THE U-21 AND THE PILOT

RECOMMENDATION NUMBER: A-[illegible]
ISSUE DATE: [illegible]
ADDRESSEE: FAA
STATUS: CLOSED - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: INCORPORATE FORMAL TRAINING ON THE DANGERS OF THE LOW WORKLOAD ENVIRONMENT AT ALL LEVELS OF AIR TRAFFIC CONTROLLER TRAINING.

AND TWO PASSENGERS ABOARD THE PA-31 WERE FATALLY INJURED.

RECOMMENDATION NUMBER: A-88-026
ISSUE DATE: 2/25/88
ADDRESSEE: FAA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ESTABLISH AN AD HOC TASK FORCE, INCLUDING CONTROLLER AND HUMAN PERFORMANCE EXPERTISE, TO EVALUATE THE EXTENT TO WHICH RADAR AIR TRAFFIC CONTROLLERS ARE DEPENDENT ON FULL DATA BLOCK RADAR SYMBOLOGY TO CARRY OUT THEIR DUTIES AND TO MAKE APPROPRIATE IMPROVEMENTS IN INITIAL AND RECURRENT RADAR TRAINING TO RECTIFY SUCH DEFICIENCIES.

LOG NUMBER: 2063

ACCIDENT SYNOPSIS:

ON JANUARY 15, 1987, ABOUT 12:52 P.M., SKYWEST FLIGHT 1834, A SWEARINGEN SA-226TC (METRO II), AND A MOONEY M20 COLLIDED IN FLIGHT OVER KEARNS, UTAH, IN VISUAL METEOROLOGICAL CONDITIONS. THE TWO PILOTS AND SIX PASSENGERS ABOARD THE METRO II AND THE TWO PILOTS ABOARD THE MOONEY WERE KILLED IN THE ACCIDENT WHICH OCCURRED WITHIN THE SALT LAKE CITY (SLC) AIRPORT RADAR SERVICE AREA (ARSA).

RECOMMENDATION NUMBER: A-88-046
ISSUE DATE: 6/07/88
ADDRESSEE: FAA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REVIEW AND REVISE AS NECESSARY THE AIR TRAFFIC CONTROL ACADEMY AND FACILITY TERMINAL RADAR TRAINING PROGRAMS TO INCLUDE "REAL WORLD" ASPECTS, SUCH AS VISUAL FLIGHT RULES INTRUDERS, INTO THE RADAR TRAINING FACILITY AND THE ELECTRONIC TARGET GENERATOR SCENARIOS.

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LOG NUMBER: 2032

ACCIDENT SYNOPSIS:

THE NATIONAL TRANSPORTATION SAFETY BOARD BELIEVES THAT RUNWAY INCURSIONS AND NEAR-MIDAIR COLLISIONS, WITH THEIR ASSOCIATED POTENTIAL FOR A CATASTROPHIC COLLISION, REPRESENT TWO OF THE MOST SERIOUS PROBLEMS INVOLVING THE SAFETY OF COMMERCIAL AVIATION OPERATIONS IN THE UNITED STATES TODAY. IN THE PAST 2 YEARS AND TO DATE DURING 1988, THERE HAS BEEN A SIGNIFICANT NUMBER OF AIR TRAFFIC CONTROLLER OPERATIONAL ERRORS AT THE CHICAGO O'HARE INTERNATIONAL AIRPORT (O'HARE) THAT RESULTED IN NEAR COLLISIONS BETWEEN AIR CARRIER, CORPORATE, AND GENERAL AVIATION AIRPLANES DURING GROUND OPERATIONS ON THE AIRPORT AND DURING DEPARTURE AND ARRIVAL PHASES OF FLIGHT. THE SAFETY BOARD REMAINS CONCERNED THAT, ALTHOUGH THE FEDERAL AVIATION ADMINISTRATION (FAA) HAS IMPLEMENTED PROCEDURAL AND OPERATIONAL CHANGES AND OTHER CORRECTIVE ACTIONS AT O'HARE, THESE EFFORTS HAVE NOT PREVENTED THE CONTINUING OCCURRENCE OF THESE INCIDENTS. THE SAFETY BOARD IS AWARE THAT ON AUGUST 8, 1988, THE FAA'S OFFICE OF AVIATION SAFETY INITIATED A SYSTEMS SAFETY AND EFFICIENCY REVIEW OF THE O'HARE AIRPORT WITH A VIEW TOWARD MAKING APPROPRIATE IMPROVEMENTS IN THE O'HARE AIRPORT AND ITS OPERATION. THE SAFETY BOARD BELIEVES THAT IT IS IMPORTANT FOR THE FAA TO HAVE THE RESULTS OF THE SAFETY BOARD'S SPECIAL INVESTIGATION INITIATED ON JUNE 9, 1988.

RECOMMENDATION NUMBER: A-88-091
ISSUE DATE: 8/08/88
ADDRESSEE: FAA
STATUS: CLOSED - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: IMPLEMENT A "BACK-TO-BASICS" PROGRAM AT THE CHICAGO O'HARE TERMINAL RADAR APPROACH CONTROL FACILITY WHICH INCLUDES REFRESHER TRAINING IN THE FUNDAMENTAL AND ESSENTIAL AIR TRAFFIC CONTROL PROCEDURES AND REQUIRE THAT ALL RADAR CONTROLLERS COMPLETE THE COURSE AND BE GRADED ON THEIR UNDERSTANDING OF THE COURSE CONTENT.

RECOMMENDATION NUMBER: A-[illegible]
ISSUE DATE: [illegible]
ADDRESSEE: FAA
STATUS: OPEN - UNACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: PROCURE STATE-OF-THE-ART, STAND-ALONE, THREE-DIMENSIONAL, DYNAMIC RADAR SIMULATORS, CAPABLE OF REPLICATING ACTUAL WORKING CONDITIONS IN A SIMULATED RADAR ENVIRONMENT, FOR TRAINING AND CERTIFYING RADAR AIR TRAFFIC CONTROLLERS.

RECOMMENDATION NUMBER: A-88-091
ISSUE DATE: 8/08/88
ADDRESSEE: FAA
STATUS: CLOSED - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ENSURE THAT THE GREAT LAKES REGION IS ABLE TO FULLY FUND THE CHICAGO O'HARE AIR TRAFFIC CONTROL FACILITY'S TRAINING, OVERTIME, EQUIPMENT, AND PERMANENT CHANGE OF STATION PROGRAMS UNTIL AUTHORIZED STAFFING IS ACHIEVED AND THE NUMBER OF FULL PERFORMANCE LEVEL CONTROLLERS IN EACH--THE TOWER AND THE TERMINAL RADAR APPROACH CONTROL--IS EQUAL TO 75 PERCENT OF THE NUMBER OF AUTHORIZED CONTROLLERS.

LOG NUMBER: 2106

ACCIDENT SYNOPSIS:

THE NATIONAL TRANSPORTATION SAFETY BOARD IS INVESTIGATING AN AIR TRAFFIC CONTROL (ATC) OPERATIONAL ERROR AT THE NEW YORK AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC) ON OCTOBER 12, 1988, AT 1435 EASTERN DAYLIGHT TIME. THE OPERATIONAL ERROR RESULTED IN THE LOSS OF STANDARD SEPARATION BETWEEN TWO AIRPLANES WHICH HAD BEEN ISSUED DESCENT CLEARANCES FOR LANDING AT NEWARK, NEW JERSEY. THE INCIDENT INVOLVED THE PRESIDENTIAL AIRPLANE, AIR FORCE ONE, A BOEING 707, WHICH WAS DESCENDING TO 9,000 FEET MSL AND BAR HARBOR AIRLINES FLIGHT 494, AN AEROSPATIALE ATR-42, WHICH WAS DESCENDING TO 7,000 FEET.

RECOMMENDATION NUMBER: A-88-157
ISSUE DATE: 11/15/88
ADDRESSEE: FAA
STATUS: CLOSED - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: CONDUCT A SYSTEM SAFETY AND EFFICIENCY REVIEW, UNDER THE DIRECTION OF THE OFFICE OF AVIATION SAFETY, OF THE HIGH TRAFFIC DENSITY NORTHEAST CORRIDOR. THE REVIEW SHOULD INCLUDE COMPREHENSIVE EVALUATIONS OF THE NEW YORK AIR ROUTE TRAFFIC CONTROL CENTER (ARTCC) AND TERMINAL RADAR APPROACH CONTROL (TRACON), THE WASHINGTON ARTCC, AND THE PHILADELPHIA AIR TRAFFIC CONTROL TOWER (ATCT) AND TRACON. THESE EVALUATIONS SHOULD FOCUS ON THE ADEQUACY OF FACILITY MANAGEMENT, SUPERVISION, OPERATIONAL PROCEDURES, TRAINING, STAFFING, AND HUMAN RESOURCE PROGRAMS.

AIRCRAFT SEATING FOR THE BLIND

Mr. LEHMAN. Would you include for the record your position regarding restriction on seating in aircraft on the basis of visual acuity of a passenger?

[The information follows:]

In commenting on a Department of Transportation Notice of Proposed Rulemaking in 1988, Docket No. 45657, "Nondiscrimination on the Basis of Handicap in Air Travel," the Board stated that it believed that persons who can not meet certain functional requirements should not occupy seats in rows that lead to overwing exits. Below are comments from the Board's response:

"Based upon Safety Board accident investigations, passengers not flight attendants typically open overwing emergency exits following an accident. In some instances, the exit hatches were opened and then closed by passengers because fire or some other unsafe situation existed outside the airplane that rendered the exit unuseable. In other instances, exit hatches were placed on floors or seats which created obstacles during evacuations; this situation is particularly onerous with high density seating configurations that can restrict the flow of passengers to these exits. When passengers get onto the airplane's wings from these exits, they must walk toward the trailing edge of the wing and then sit and slide to the ground. A functional requirement that passengers seated in exit rows be able to assess the conditions outside an emergency exit, open the exit and begin the evacuation process without delay is applied by most airlines in determining who should be permitted to sit in exit rows. The flow of passengers from an overwing exit could be seriously impeded or blocked if persons without these functional abilities were seated in exit rows. The Safety Board believes, therefore, that the FAA should further define functional abilities required to assess conditions outside the airplane, and to perform the tasks necessary during the evacuation process. The Safety Board further believes that persons who cannot meet these functional requirements should not occupy seats in rows that lead to overwing exits."

In 1989, the Safety Board commented in support of FAA Docket No. 25821, "Exit Row Seating," that stated a person may not be seated in certain sections of the aircraft, including all of the seats in the row from the fuselage to the first aisle inboard of the exit or, in cases where there is no aisle, in any seat that has direct access to an exit, if the person lacks sufficient visual capacity to perform certain functions without the assistance of visual aids beyond contact lenses or eyeglasses. Those functions include, but are not limited to:

Locate the exit;

Recognize the exit opening mechanism;

Comprehend the instructions for operating the exit;

Operate the exit;

Assess whether opening the exit will increase the hazards to which passengers may be exposed;

Assess the condition of an escape slide, activate the slide, and stabilize the slide after deployment to assist others in getting off the slide; and

Assess, select, and follow a safe path away from the exit.

ANNUAL REVIEW OF AIRCRAFT ACCIDENT DATA

Mr. LEHMAN. In reviewing your reports, I notice your annual review of aircraft accident data for calendar year 1986 was not published until 1989. Why does it take over two years to publish this report, and is this two or three year old data of any value?

Mr. KOLSTAD. I agree that it's too long a period of time, and we're moving to shorten the time period. Part of the problem is that the investigations have to be completed before we can publish the report. Sometimes those investigations take longer because of litigation or a need to do a more thorough analysis.

The report can't be completed until all of the investigations for that year are completed. However, I think we can do a better job, and we will work on that.

AIRCRAFT SEATING FOR THE BLIND

Mr. LEHMAN. We had some people visit our office regarding the problems of the blind and where they may be seated. Does your agency have a position on this problem?

Mr. KOLSTAD. We support the FAA's position on that.

Mr. LEHMAN. Which is opposed to the position of the handicapped in some ways?

Mr. KOLSTAD. In some ways, that's true.

HELICOPTER SAFETY

Mr. LEHMAN. Before leaving aviation, have you had any problems with helicopter safety? I know there are more and more of them now.

Mr. KOLSTAD. We are greatly concerned about the increase in helicopter accidents. As a result, we conducted a study of emergency medical service helicopters a year and a half ago in which we addressed the rapid increase in accidents.

There is a much greater use of helicopters by hospital facilities now than ever in the past. We found that there were problems in dispatching, which basically suggested that these pilots sometimes fly in weather they shouldn't be flying in and that they're working long periods of time are far beyond what safety would dictate. We made recommendations in those areas.

Mr. LEHMAN. I wasn't thinking about the emergency medical helicopters. I'm just talking about commercial helicopters. They have a helipad at Miami International Airport that brings people in from Palm Beach, and so forth, for international flights. Also, many sheriff's offices in the country have helicopters now, and many corporations have their own helicopters.

Mr. KOLSTAD. If you take out the EMS operations, I might turn to one of my senior staff to see if they might have a more complete answer.

Mr. LEHMAN. We've talked about aviation but haven't touched on helicopters.

Mr. BANKS. Mr. Chairman, the helicopter operation in this country today—you're completely right about the number increasing. But the safety of operation of the helicopters I think is also improving. The pilots are beginning to realize the no-go situation as far as the weather is concerned, they're getting better weather briefings, and I think that you will find even down—we had a rash of accidents off the Gulf Coast down there as far as the oil rigs are concerned. We are still having accidents in that area, but they are not increasing to the number of operations that we have.

The only other thing we would say that we found—and one of the things that happened in the medical services, that a lot of the accidents were happening after the emergency was over. A goodly number of the accidents happened after they had dropped the patient off and they were on the way back to home base, flying in bad weather. But the emergency was over and there was no need for them to fly.

One of the things that we've been working with the helicopter pilot's association is to make sure that they understand exactly what responsibility they have with flying in the airspace in reduced visibility, in the hours of darkness, in bad weather, and so forth.

Mr. LEHMAN. It's a lot harder, I understand, to fly a helicopter than it is to fly an airplane.

Mr. BANKS. That's not quite right, sir.

Mr. LEHMAN. The pilots tell me that, but it isn't correct?

Mr. KOLSTAD. Mr. Banks was a Viet Nam pilot, Mr. Chairman, who was shot down, and he was a many hour helicopter pilot.

Mr. LEHMAN. I won't argue with him.

Mr. BANKS. Mr. Chairman, the only thing, it just requires a little bit smoother touch, that's all.

Mr. LEHMAN. Mr. Coughlin, do you have some questions?

RECOMMENDATION ACCEPTANCE RATES

Mr. COUGHLIN. Thank you, Mr. Chairman.

Before going to the rail questions specifically, last year you gave us an overview of your acceptance rate of your various recommendations to the various modes of transportation.

Last year, the percentages were as follows: FAA 78 percent accepted, NHTSA 72 percent accepted, FRA 65 percent accepted, RSPA 73 percent accepted, UMTA 65 percent accepted, Coast Guard 72 percent accepted, FHWA 84 percent accepted, and non-Federal 75 percent accepted.

Could you update that for the record and give us an overview now of how you feel about your acceptance rate?

Mr. KOLSTAD. Certainly. Taking FRA as an example, because I think we had some serious problems with FRA. For example, in 1988, we had received only 9 responses from the agency. In 1989, we had received 23 responses, so they're becoming much more responsive and as a matter of fact, I'm meeting with the administrator of FRA to go over the recommendations that we have made recently that are outstanding.

Mr. COUGHLIN. And can you update the rest of them for the record so we have it?

Mr. KOLSTAD. Absolutely.

Mr. COUGHLIN. Are there any other particular problem areas?

Mr. KOLSTAD. Between the modes and us?

Mr. COUGHLIN. Between the modes and you.

Mr. KOLSTAD. I would say the most dramatic improvement has been with the Federal Railroad Administration, and I really couldn't identify any other problem areas with the modes.

Mr. COUGHLIN. What was the FRA's acceptance rate during the past year?

Mr. KOLSTAD. Mr. Sweedler, do you have that?

Mr. SWEEDLER. No, I don't think we have those numbers, just for this year. But the responsiveness has been much better.

Mr. KOLSTAD. More than three times better than it was.

Mr. COUGHLIN. If you don't have the percentage——

Mr. SWEEDLER. We don't have the actual number, but the turnaround as far as the responsiveness has been improving.

RAILROAD PASSENGER CAR CRASHWORTHINESS

Mr. **Coughlin**. According to your justifications, Amtrak has been more responsive to your recommendations on rail passenger car crashworthiness than has FRA. What progress has been made in this area during the past year?

Mr. **Kolstad**. They advised us that they're installing emergency escape windows in sleeping cars, for example, and they've made some improvements in the seat and seat restraint mechanisms and they've added padding covering metal parts in some areas. We still think that they have a ways to go, but they are making some improvements.

LOCOMOTIVE CAB SAFETY

Mr. **Coughlin**. You also indicated that the present state of locomotive cab safety was unsatisfactory and the FRA needs to move quickly to deal with these problems. How responsive has FRA been to your recommendations on locomotive cab safety?

Mr. **Kolstad**. This is an area, Congressman, where we don't think that they have been sufficiently responsive. We think that there are issues of crashworthiness that are long overdue for being addressed.

For example, locomotive sill height is one of the areas. When you have locomotives of differing sill heights of even a few inches, and you have a low speed collision of two trains, we often see fatal injuries as a result. We have several instances of head-on collisions at very low speeds which should have been survivable but were fatal to the crew because of the difference in sill height.

When you have more than 30 automobile manufacturers, foreign and domestic, that can meet a standard bumper height, we don't understand why two domestic locomotive manufacturers can't agree on a common sill height. We think that safety would be greatly enhanced if they would have common sill heights.

Mr. **Coughlin**. There have been a number of accidents resulting in fatalities from the sill height difference?

Mr. **Kolstad**. Yes, sir. Do you know, Mr. Sweedler, how many?

Mr. **Sweedler**. Not the exact number, but there have been a number. The most recent one was the one in Yuma, Arizona.

RAILROAD CRASHWORTHINESS

Mr. **Coughlin**. Would you update for the record the status of the three crashworthiness recommendations listed on page 123 of last year's record?

[The information follows:]

An updated status of the three safety recommendations listed relating to railroad crashworthiness is listed below.

Recommendation number	Status last year	Current status	Date of last correspondence
R-87-23	OUA	OUA	Sept. 28, 1989.
R-84-46	OUA	OUA	Do.
R-83-76	CUA	CUA	Do.

Note: OUA—Open—Unacceptable Action. CUA—Closed—Unacceptable Action.

TEXT OF SAFETY RECOMMENDATIONS

R-87-23: Promptly require locomotive operating compartments to be designed to provide crash protection for occupants of locomotive cabs.

R-84-46: Expedite the studies on the interior design of passenger cars, described in the January 1984 report to Congress, and publish recommended guidelines for securing seats and for luggage retention devices.

R-83-76: Expedite the development of passenger car safety standards which were mandated by Congress in October 1980 (reiterated January 14, 1983), including in the standards: (A) criteria for the location and intensity of emergency lights within the cars to assure adequate visibility for escape from smoke filled cars; (B) requirements for emergency evacuation plans, for training of personnel for emergencies, and for emergency systems, such as emergency exits and doors, smoke detector systems, etc., specifying the numbers, type, location, and markings; (C) acceptable levels of flame spread rate, smoke emissions, and toxic fumes for interior materials; and (D) requirements for the installation of a sprinkler system to which water can be supplied by emergency equipment through externally mounted standard standpipes.

FRA RECOMMENDATION RESPONSE

Mr. COUGHLIN. Last year, you indicated that FRA had not responded to any of your 11 recommendations regarding alcohol and drug use. What response have you received since our hearing last year?

Mr. KOLSTAD. As I mentioned, we think that FRA's rule is the best. We still have major areas of difference in the coverage. We think that the testing program should apply to all employees in safety sensitive positions. The FRA rules currently apply only to employees covered by eight hours of service regs.

We have asked for post-accident testing when you have damage of $150,000 and the FRA threshold is $500,000. So that's two areas of difference.

Mr. COUGHLIN. Could you put a complete list in the record of those eleven and what their responses have been?

Mr. KOLSTAD. Certainly.

[The information follows:]

NATIONAL TRANSPORTATION SAFETY BOARD

REPORT DATE: 3/05/90

SPECIAL STUDY NUMBER: SS-88-04

RECNO	ABSTRACT
R-88-023 R-88-024 R-88-025 R-88-026 R-88-027 R-88-028 R-88-029 R-88-030 R-88-031 R-88-032 R-88-033	IN 1987, THE NATIONAL TRANSPORTATION SAFETY BOARD UNDERTOOK A SAFETY STUDY TO REVIEW THE FIRST FULL YEAR OF IMPLEMENTATION OF THE CURRENT FEDERAL RAILROAD ADMINISTRATION'S (FRA) ALCOHOL AND DRUG RULE. ALSO, THE SAFETY BOARD WANTED TO EXAMINE WHAT ACTIONS BEYOND THOSE REQUIRED BY THE RULE COULD BE UNDERTAKEN BY THE RAILROADS AND THE FEDERAL GOVERNMENT TO REDUCE HIGH LOSSES FROM ACCIDENTS INVOLVING RAILROAD EMPLOYEES IN SAFETY-SENSITIVE POSITIONS WHO CONTINUE TO USE ALCOHOL AND/OR DRUGS ON THE JOB.

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-023
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE:
DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219 TO REQUIRE POSTACCIDENT TOXICOLOGICAL TESTING OF ALL EMPLOYEES IN SAFETY-SENSITIVE POSITIONS.

RESPONSE:

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-024
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE:
DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219 TO REQUIRE THAT RAILROADS ADOPT MANDATORY REASONABLE CAUSE TESTING PROGRAMS FOR ALL EMPLOYEES IN SAFETY-SENSITIVE POSITIONS.

RESPONSE:

NATIONAL TRANSPORTATION SAFETY BOARD

REPORT DATE: 3/05/90

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-025
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE:
DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219 TO EXPAND THE CIRCUMSTANCES WHICH WILL TRIGGER REASONABLE CAUSE TESTING TO INCLUDE ANY VIOLATION OF ANY SAFETY OR OPERATING RULE WHICH CAN COMPROMISE THE SAFETY OF OPERATIONS OR THE WELFARE OF OTHER EMPLOYEES. REASONS FOR REASONABLE CAUSE TESTING COULD ALSO INCLUDE WORK ATTENDANCE, WORK HABITS, AND POOR MOTOR VEHICLE DRIVING RECORDS.

RESPONSE:

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-026
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE:
DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219 TO REQUIRE TOXICOLOGICAL TESTING IN ALL TRAIN ACCIDENTS IN WHICH ESTIMATED RAILROAD DAMAGE BASED ON REPLACEMENT COSTS AND OTHER ESTIMATED LOSSES, INCLUDING NONRAILROAD PROPERTY LOSSES, ARE $150,000 OR MORE.

RESPONSE:

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NATIONAL TRANSPORTATION SAFETY BOARD

REPORT DATE: 3/05/90

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-027
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE: DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219 TO REQUIRE TOXICOLOGICAL TESTING OF ALL EMPLOYEES INVOLVED IN ANY IMPACT ACCIDENT RESULTING IN AN INJURY AS DEFINED IN 49 CFR 225.5(3)(III).

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-028
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE: DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219 TO REQUIRE PERIODIC MEDICAL EXAMINATIONS (RETURN-TO-WORK, RETURN-FROM-FURLOUGH, AND OTHERS AS APPROPRIATE) FOR ALL RAILROAD EMPLOYEES IN SAFETY-SENSITIVE POSITIONS, AND TO REQUIRE THAT ALCOHOL AND DRUG SCREENING BE MADE A PART OF THOSE EXAMINATIONS.

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-029
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE: DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219 TO REQUIRE ALCOHOL BREATH TESTING IN ADDITION TO URINE TESTING WHEN ANY CONDITION

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UNDER SUBPART D (REASONABLE CAUSE TESTING) IS MET.

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-030
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE:
DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: REQUIRE A FEDERAL MEDICAL CERTIFICATE FOR ALL RAILROAD EMPLOYEES IN SAFETY-SENSITIVE POSITIONS. IN DEVELOPING A MEDICAL CERTIFICATE PROGRAM, ESTABLISH MEDICAL STANDARDS SIMILAR TO PROGRAMS ALREADY USED BY THE FEDERAL AVIATION ADMINISTRATION AND THE FEDERAL HIGHWAY ADMINISTRATION.

RESPONSE:

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-031
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE: 3/10/89

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219 TO REQUIRE RAILROADS TO COLLECT ALL APPROPRIATE TOXICOLOGICAL SAMPLES AS SOON AS PRACTICABLE AND NOT MORE THAN 4 HOURS AFTER THE TRIGGERING EVENT. WRITTEN EXPLANATION OF THE REASON(S) FOR FAILURE TO COLLECT SAMPLES WITHIN 4 HOURS OR NOT AT ALL MUST BE SUBMITTED TO THE FEDERAL RAILROAD ADMINISTRATION.

RESPONSE:

NATIONAL TRANSPORTATION SAFETY BOARD

REPORT DATE: 3/05/90

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-032
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE:
DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219 TO REQUIRE RAILROADS TO MONITOR RELEVANT BEHAVIOR AND PERFORMANCE, SUCH AS WORK ATTENDANCE, WORK HABITS, AND MOTOR VEHICLE DRIVING RECORDS, OF ALL EMPLOYEES IN SAFETY-SENSITIVE POSITIONS AND TO RECOMMEND TO COUNSELING THOSE EMPLOYEES WHOSE WORK ATTENDANCE, WORK HABITS, OR MOTOR VEHICLE DRIVING RECORDS ARE CONSISTENT WITH POSSIBLE SUBSTANCE ABUSE.

RESPONSE:

LOG NUMBER: R-0604
RECOMMENDATION NUMBER: R-88-033
DATE OF ISSUE: Aug-09-1988
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FRA
DATE OF RESPONSE:
DATE OF NTSB FOLLOWUP LTR: 2/28/89

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL RAILROAD ADMINISTRATION: AMEND 49 CFR PART 219, SUBPART B, TO REQUIRE ANNUAL DRUG AND ALCOHOL DETECTION TRAINING FOR ALL EMPLOYEES WHO ARE REQUIRED TO MONITOR FITNESS FOR DUTY OF OTHER RAILROAD EMPLOYEES INCLUDING COVERED (HOURS-OF-SERVICE) EMPLOYEES, SUCH AS CONDUCTORS, YARDMASTERS, FOREMEN, AND OTHERS.

RESPONSE:

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R-88-23 thru -33

U.S. Department of Transportation
Federal Railroad Administration

Office of the Administrator

400 Seventh St., S.W.
Washington, D.C. 20590

not. 4885

MAR 1 0 1989

Log R-0604

The Honorable James L. Kolstad
Acting Chairman
National Transportation Safety Board
800 Independence Avenue, S.W.
Washington, D.C. 20594

Dear Mr. Chairman:

This letter is in response to National Transportation Safety Board Recommendations R-88-23 through R-88-33. These recommendations resulted from the Board's safety study entitled "Alcohol/Drug Use and its Impact on Railroad Safety."

Post-accident testing data compiled over the past three years has clearly established the existence of a substance abuse problem in this industry. We believe our efforts on the voluntary front, as well as our testing rule, have had a positive impact on that problem, and I appreciate the Board's kind remarks about the rule in its safety study. The specifics of the recommendations contained in that study are discussed in detail in the attachments to this letter. I also want to request, however, that the Board reconsider its own position on one issue with a significant bearing on the future success of workplace drug abuse prevention programs. That issue is random testing.

I can assure you that there are no ideologues on the testing issue at FRA. From the outset of our involvement, we have balanced our testing efforts with strong support for voluntary prevention programs, and a mandate that each carrier offer special incentives to induce employees to address their problems prior to failing a drug test. But as important as voluntary programs may be, we recognize that not every employee responds to voluntary incentives in the same way. Testing is an equally essential part of any successful program against workplace alcohol and drug abuse.

On the alcohol side, prevention programs and reasonable cause testing have been more effective than we anticipated. Post-accident tests are now disclosing alcohol positives in less than one-half of one percent of the employees tested. This is a dramatic improvement for an industry where alcohol usage rates were estimated in double digits both by labor and management sources a decade ago. On the drug side, however, the program has not been as effective. Our post-accident drug failure rates have increased in each of the last three years, from 3.7 percent in 1986 to 5.1 percent in 1987 to 6 percent in 1988.

In actual practice, the symptoms of alcohol abuse proved far more recognizable than we had perceived them to be. Moreover, since alcohol use is often associated with social environments, it does not take long for crews spending several nights a week in away from home crew terminals to discover who the alcohol abusers are. And the countermeasures contained in FRA, industry and labor programs on alcohol abuse have proven effective in dealing with this fairly identifiable population.

On the drug side, however, the inherent limitations of cause testing have become evident. Cause testing is entirely dependent upon a supervisor's ability to recognize symptoms. And the reality is that many of the drugs in vogue in today's workplace do not give symptoms recognizable to even an educated layman. Moreover, the users have become increasingly aware of this limitation, and we believe the increase in drug testing positives reflects increasing boldness by casual drug users who were frightened away from workplace drug use when the rule was initially implemented. Finally, one must do nothing more to beat a reasonable cause system than show up for work clean and consume drugs in the locomotive cab. Following the Chase Maryland accident, engineer Gates testified that he was aware of the FRA program, and knew that the crew could be "eyeballed" before being permitted to leave the initial terminal. He testified that crews adapted to that system by reporting for work clean, and carrying drugs with them into the locomotive cab. He subsequently testified that he and his brakeman were actually in the process of consuming drugs at the time they ran the multiple signals and struck the Amtrak train.

Recognition of these limitations convinced us that on the drug side, FRA had no choice but to take the further step to random testing. Random testing is not dependent upon the observation of symptoms, and the users know that. It cannot be defeated by on duty drug use. Moreover, because random testing eliminates management discretion in the selection of testing subjects, it provides employees with the best possible guarantee against discriminatory testing. Because it cannot be defeated by any form of consumption manipulation, random testing provides the strongest possible deterrent to workplace drug use.

For many years the Board has played a leadership role in battling workplace drug abuse, and for that reason, we were particularly disappointed with the public opposition to random testing stated by several Board members, including its former Chairman Mr. Burnett. We strongly urge that the Board review the data developed over the past three years of railroad drug testing, and rethink its position on the random testing option. Random testing is certainly not a panacea. It must be used in combination with prevention programs, rehabilitation options, and other forms of testing. But the fact is that difficulties in recognizing drug symptoms, coupled with the users belief that his drug use will not result in symptoms, provide inherent limitations on the potential effectiveness of cause testing. Unless we are prepared to tolerate failure rates in the four to six percent range indefinitely, we have to do more. That is why the Department has moved to random testing, and the Board's support in that effort could make a material difference in the successful implementation of the random testing program.

I appreciate both your recent recommendations, and your consideration of these arguments. We look forward to working with you in the future on the issue of workplace substance abuse.

Yours very truly,

John H. Riley
Administrator

Recommendation R-88-23: Amend 49 CFR Part 219 to require post-accident toxicological testing of all employees in safety-sensitive positions.

Response:

Litigation now pending before the United States Supreme Court prevents us from responding to this recommendation at the present time.

It goes without saying that every FRA regulation is under constant review, and as opportunities for improvement appear, or glitches in the regulation's functioning become apparent, we make every effort to draft and implement refinements. The alcohol and drug testing regulations are no exception.

However, litigation counsel have advised FRA that it is not a wise course to embark on fundamental changes to a rule pending before the Supreme Court. Such changes could be viewed by the court as grounds for remanding the case rather than deciding it on the existing facts.

It should be evident that we believe a carrier should have the ability to perform post-accident toxicological tests on every employee who could, through their conduct, have contributed to a significant accident. When we authored the current rule, we sought to meet three objectives--testing that went to the broadest constitutionally permissible limits, testing that was conducted with the maximum possible accommodation of employee interests, and a program constructed in a manner that gave it the maximum possible chance of surviving judicial review. The attention we gave to that third criteria is largely responsible for the fact that our program has remained in force, while others have not. And as you know, the FRA program is now the subject of the bellwether case on drug testing before the United States Supreme Court.

We recognize from the onset that the scope of testing--the number of employees subject to testing--would be a major litigation issue. However, we were fortunate to have what amounts to a congressional definition of "safety sensitive employee" in the railroad industry, a definition embodied in the Hours of Service Act. Without debating the pros and cons on the scope of that act, we made a decision that adopting our rulemaking definition of safety sensitive to the congressional definition gave us the maximum assurance of surviving judicial review on this issue. And to date, all courts have sustained this portion of the rule.

Of course, there are tradeoffs in any definition of "safety sensitive," as illustrated by the Russell, Iowa accident in which the individual suspected of failing to properly set the switch at which the accident occurred was outside the scope of our testing rule. The assessment of the tradeoffs involved in this kind of "line drawing" will undoubtedly be ongoing as long as the rule is in effect. However, we are constrained from further exploring this issue while the litigation is pending, and even if we were to reopen this portion of the rule, we would certainly want to have the benefit of any guidance on scope of coverage that might appear in the Supreme Court's decision.

Our Ccunsel believes that the court is likely to issue its ruling on the Ninth Circuit Appeal sometime this spring. We have no alternative but to leave this recommendation open for the time being, but will place it on diary and respond with specificity following conclusion of the Supreme Court proceeding.

Recommendation R-88-24: Amend 49 CFR Part 219 to require that railroads adopt mandatory reasonable cause testing programs for all employees in safety-sensitive positions.

Response:

This recommendation focuses on one of the practical limitations of reasonable cause testing.

The current rule authorizes reasonable cause testing, but there is no practical way to mandate it. The problem lies in enforceability. There are normally only two parties to a reasonable cause testing situation--the manager who observes it, and the employee who gave cause to test. The problem is that if a cause situation arises, but the test is not performed, neither party has an incentive to report the violation. The employee who escapes testing will surely not report himself, and the manager who failed to administer the test is equally unlikely to do so. Even should a fellow employee observe the incident, the chance of a fellow employee turning in a manager for failing to test a coworker is slim indeed. Converting the current authorization into a mandate would not achieve a solution to the problems of inconsistent levels of effort cited by the NTSB.

FRA, incidentally, is in complete agreement with NTSB's observations on the inconsistency in levels of effort under current cause testing programs. That is an inevitable consequence of a program that is permissive rather than mandatory, one of the inherent limitations in any reasonable cause testing program. In weighing how to address that problem, we considered but, for the reasons cited, rejected an alteration of the rule to make cause testing mandatory. That action would, in our judgment, be more symbolic than effective. The only way to assure that a specified number of tests will be conducted on all railroads is through a random testing program with mandatory sampling limits for all carriers. FRA's decision to adopt a random testing mandate was a response to precisely the problem raised by this recommendation. And because it is relatively simple to determine with certainty whether the prescribed number of random tests are being conducted, random testing provides a guarantee that a uniform level of effort will be conducted on all carriers that a "mandatory" reasonable cause testing program can never provide.

We have no difference with the Board's assessment of the problem created by the permissive nature of reasonable cause testing. But we are convinced that the random testing proposal resolves that problem far more effectively than the solution contained in this recommendation. Moreover, it is clear that our inspectors can effectively enforce the random testing mandate, while there is serious question about our ability to enforce a mandatory reasonable cause program. As a consequence, we request that the Board close this recommendation on the ground that the agency has taken an effective alternative action.

Recommendation R-88-25: Amend 49 CFR Part 219 to expand the circumstances which will trigger reasonable cause testing to include any violation of any safety or operating rule which can compromise the safety of operations or the welfare of other employees. Reasons for reasonable cause testing could also include work attendance, work habits and poor motor vehicle driving records.

Response:

For the reasons set forth in our response to Recommendation R-88-23, we feel compelled to defer a specific reply to this recommendation pending completion of the litigation concerning our current alcohol and drug testing rule.

We note, however, that in constructing the current rule we decided to err in the direction of specificity in defining the grounds for reasonable cause testing. It was clear from the onset that FRA's rule would have to withstand a strong constitutional challenge. Two elements that bear on the reasonableness of a search and seizure mandate are the specificity of the grounds justifying that search, and the relationship between those grounds and the probability that an alcohol or drug violation will be found. All of our current reasonable cause triggering events relate directly to instances in which human performance was a possible cause of the accident. We felt from the onset of our deliberations that testing should be authorized following the violation of safety rules that involved human performance, since it is legitimate to investigate all possible causes of human performance decrement. To ensure that such a provision could withstand constitutional review, however, we reviewed our regulations and carefully selected those which were important from a safety perspective and clearly tied to human performance. Broadening that portion of the rule to include any safety violation which could compromise operational safety would increase the attenuation between the event triggering the test and the kinds of human performance failures which often correlate with drug or alcohol positives. How far FRA could go in this direction, if it decided to adopt this approach, is unclear, and we would not want to consider that issue until we have the ability to analyze the language in the Supreme Court's pending decision. In any event, however, for the reasons previously described, we are unable to consider this recommendation until completion of that appeal. We will diary it, and respond with specificity following the Supreme Court's ruling.

Recommendation R-88-26: Amend 49 CFR Part 219 to require toxicological testing in all train accidents in which estimated railroad damage based on replacement costs and other estimated losses, including non-railroad property losses, are $150,000 or more.

It is important at the outset to recognize that the $500,000 property damage threshold for major accidents is only one of the triggering criteria for post-accident testing. Testing is automatically required if a fatality occurs in a train accident, or if hazardous material is released and an evacuation is required or there is an injury from the product being transported. Testing is also required after impact accidents where there is an injury or damage of $50,000. Any employee fatality in a train incident also results in testing.

The triggering criteria other than the $500,000 accident damage are keyed to situations where human performance was a likely cause of the accident. The addition of the $500,000 damage limit reflects FRA's view that very serious accidents, with large amounts of damage, correlate to human performance far more frequently than minor derailments. It also reflects the fact that very significant accidents are simply treated differently than minor derailments. The concept of dollar thresholds permeates safety enforcement and accident reporting regulations in FRA, as in other safety agencies.

Obviously, there is no "magic number" for defining the mandatory testing threshold. In fact, at one time FRA did use a $150,000 figure in a preliminary draft of its current rule. However, we rejected that figure upon recognizing that a threshold that low would sweep into testing a large number of smaller accidents where human performance clearly was not a factor. We believe the judgment that a $150,000 threshold was too low is even more valid today, since the subsequent adoption of a random testing mandate ensures that every railroad employee will be tested periodically and remain subject to short notice testing at all times.

We do intend to continuously review the proper dollar threshold for mandatory post-accident testing. We drew substantial testimony on this during our last oversight hearing on the rule's operation. But we are not willing to lower the damage threshold to $150,000 (which would actually be something like half that amount, if replacement cost is used). A very significant number of the accidents that qualify for testing exclusively on the basis of property damage are derailment-type events. Most of these are caused by track or equipment, or a combination of the two. The less serious these derailments are, the more likely it is that human error can be ruled out at the scene of the accident. We are not willing to subject railroad employees to blood testing without compelling reason. Providing toxicology for all Board (or FRA) files is not such a reason, and no other reason has been clearly articulated. Reasonable cause, random, and other forms of testing can be employed, as appropriate, to determine employee compliance with prohibitions on alcohol and drug use. It would be inappropriate to utilize mandatory post-accident testing as a mass screening technique.

Some additional comments are in order on the methodology of damage total calculation. We readily concede that the current calculation methodology is not a perfect system. During our oversight hearings on the rule two years ago, we sought and received extensive comment on potential alterations to that system. While several of the ideas suggested could improve the working of that system in some respects, none was as satisfactory, on balance, as the existing calculation methodology.

Under current rules and practice, the railroads estimate railroad property damage in the same manner it is estimated for reporting purposes. This methodology is identified in the Accident/Incident Reporting Guide and makes use of a standard AAR procedure that is intended to be commercially realistic. In brief, the methodology is intended to estimate the current value of the equipment at issue through inflation of book value to current costs and adjustment for depreciation on a straight line basis. This methodology has the following benefits:

- Permits verification of railroad compliance with testing requirements by comparison of damage estimates on accident reports with events for which testing was undertaken.
- Provides a realistic measure of economic loss to the railroad, rather than assuming that all equipment is brand new (which clearly is seldom the case).
- Utilizes a method of calculation that is consistent with two out of the three additional purposes for which damage estimates are commonly made (allocating of costs among railroads and FRA accident/incident reporting).

The method deliberately does not require the railroad to estimate loss and damage to lading, since the shipper's estimated value of the lading is often not immediately available, and the railroad officer on the scene has no particular expertise in making such an estimate. The method deliberately does not require estimate of wreck clearance, since that is often difficult to determine in the immediate aftermath of the accident and prompt testing is desirable. Nor is environmental clean-up or other third-party loss included.

since the railroad officer could not be expected to make a realistic estimate of these costs within a reasonable time (and it would introduce more of the delay that the Board and FRA bemoan).

This issue will continue to be reviewed on an ongoing basis. While no formulation is immutable we do not believe that a compelling case has been made to alter the testing threshold or its manner of calculation at the present time. We will, however, remain open to suggestions for improved calculation formulas.

Recommendation R-88-27: Amend 49 CFR Part 219 to require toxicological testing of all employees involved in any impact accident resulting in an injury as defined in 49 CFR 225.5(3)(iii).

Response:

The recommendation begs great difficulty with respect to definitions to be contained in any implementing rule. Many minor impacts occur on the railroad that involve little or no property damage and only minor injuries. Most occur in the yards and fall into the category of "hard couplings". Injuries can result when impact is not anticipated by the person injured. Often injuries are of a nature that are not reported for some time (e.g., back or neck strain) or that require only medical observation rather than treatment.

The current rule requires that impact events meet the definition of "train accident" before testing is conducted. At the present time, the damage threshold for a train accident is only $5,200. Any significant, unintended impact that involves a reportable personal injury will trigger testing under this criterion.

FRA asks the Board to consider that mandatory post-accident testing is a Federally required search subject to the Fourth Amendment. The testing procedure requires the taking of a blood sample. FRA wishes to strictly limit the occasions when this will be required to cases involving a significant public interest. Although we do not rule out an adjustment of the thresholds that apply to impact accidents, it is more likely that we would raise those thresholds than it is that we would lower them.

Again, reasonable cause, random, and other forms of testing can be employed, as appropriate, to determine employee compliance with prohibitions on alcohol and drug use.

Because FRA does not intend to remove the property damage threshold for impact accidents, we ask that this recommendation be closed.

Recommendation R-88-29: Amend 49 CFR Part 219 to require alcohol breath testing in addition to urine testing when any condition under Subpart D (reasonable cause testing) is met.

Response:

Post-accident testing after the most serious accidents that occur in the railroad industry has demonstrated a prevalence of alcohol use of less than 1%, in contrast to almost 50% for fatal motor vehicle accidents and very high percentages for other accidental casualties. Although delays in testing may have resulted in missing a few cases of low-level intoxication, it is not plausible to suppose that prevalence of detectable levels of alcohol in this very highly at-risk population is over 2%. (Although alcohol is eliminated at an average rate of approximately .015% per hour, that rate is reduced at lower BAC's, and FRA's testing protocol reliably detects concentrations down to .01%)

The current rule was written to give carriers the flexibility to test for alcohol, test for drugs, or test for both in combination. The decision to provide that flexibility is obviously no more immutable than any other regulatory decision. We continuously review its impact, and will do so in the future. However, we are not inclined to alter that system without clear and compelling evidence that the current system is ineffective, and a system that would compel testing for both drug and alcohol would work more effectively. We have yet to see evidence which persuades us of that conclusion. The fact is that a carrier can test an employee both for breath and urine under the current rule if it believes there is reasonable basis to do so. We intend to maintain that flexibility, but at the same time, because of the Board's recommendation, we will be particularly sensitive to review the data on an ongoing basis to assess the impact of this system.

Recommendation R-88-28: Amend 49 CFR Part 219 to require periodic medical examinations (return-to-work, return-from-furlough, and others as appropriate) for all railroad employees in safety-sensitive positions, and to require that alcohol and drug screening be made a part of those examinations.

Recommendation R-88-30: Require a Federal medical certificate for all railroad employees in safety-sensitive positions. In developing a medical certificate program, establish medical standards similar to programs already used by the Federal Aviation Administration and the Federal Highway Administration.

Response:

The Board's recommendations would Federalize medical qualifications programs, require periodic medical examinations, and require inclusion of alcohol and drug screening in those examinations.

Since these recommendations were issued, the Department has significantly altered its drug testing regulations by mandating a program of random testing. And the onset of random testing has substantial bearing on the evaluation of these recommendations.

Random testing assures that the totality of a railroad's safety sensitive work force will be tested over a predetermined (and adjustable) period of time. It also ensures that every employee is subject to testing on every day without consideration of reasonable cause. Inclusion of drug screens and physical examinations is not a substitute for this type of testing program, since most drug users will abstain for the short period necessary to avoid detection. By contrast, random testing creates an atmosphere of deterrence, detects additional drug users, and reduces the need to rely on other forms of testing. It cannot be defeated by short period abstention, since the employee is subject to testing on short notice at any time. Implementation of random testing will greatly diminish the need for implementing drug screens with routine physical examinations.

In addition to FRA required pre-employment drug screens, all major railroads have for many decades administered medical qualifications programs for their employees. They do so at their own expense and with apparent success. Periodic physical examinations are conducted at varying intervals, depending on the railroad (and sometimes craft). Older employees typically are subject to more frequent "periodic" examinations than younger employees because their developing health problems warrant more frequent monitoring. Younger employees may be subject to examination on return from furlough, and employees of all ages will typically be examined upon return from a personal injury or extended period of medical leave. This practice, which predates the creation of the Department of Transportation, has permitted FRA to withhold regulatory action with respect to medical standards. FRA is aware of no information suggesting the need for a new Federal program addressing this same subject matter. Our records contain no data suggesting that a problem exists in the industry due to employee physical incapacity. And the widespread use of alerting and automatic train control devices in the railroad industry provides a mechanical backup to engineer incapacity which is unique to our mode. While FRA does not consider current devices sufficiently tamper proof to merit a universal installation mandate, the rapid development of non-intrusive alerters and ATCS creates a significant probability that the agency will review its position in the foreseeable future.

If, on the other hand, the purpose of certification is to provide a document to suspend or revoke should the employee misuse alcohol or drugs, then it is important to note that disqualification may be effected by more direct methods. The Rail Safety Improvement Act of 1988 provides FRA express power to directly disqualify employees who violate Federal rules (including, _inter alia_, alcohol and drug prohibitions), and FRA is engaged in a rulemaking to address that issue. _See_ NPRM at 53 FR 49695; Dec. 9, 1988.

FRA believes that the railroads will continue to supplement cause and random testing by making prudent use of drug testing in their medical programs and is hopeful that the courts and boards of adjustment will allow them that latitude. It may be necessary to revisit the issue if the court decisions are adverse.

Recommendation R-88-31: Amend 49 CFR Part 219 to require railroads to collect all appropriate toxicological samples as soon as practicable and not more than 4 hours after the triggering event. Written explanations for the reason(s) for failure to collect samples within 4 hours or not at all must be submitted to the Federal Railroad Administration.

Response:

FRA's post-accident testing rule currently provides that "the railroad shall make every reasonable effort to assure that samples are provided as soon as possible after the accident or incident." Exceptions are made only for preservation of life and property and or the safety and convenience of passengers; and, even in those cases, relief crews are to be used where possible. (Reasonable cause testing, on the other hand, is allowed only in the 8 hours following the event or observation giving rise to the test.)

To date, no pattern of deliberate abuse has been documented by the Board or FRA, although we share the concern of the Board with respect to sample collection intervals. That was a major focus of our 1987 oversight hearing, and we have been monitoring the situation as a part of normal program administration. Sources of delay in sample collection have been varied and have often been justifiable. Certain factors (e.g., distance from the collection facility, weather delays, the low priority accorded to sample collection at medical facilities) are wholly beyond the control of the railroads.

FRA evaluated the concept of including a time limitation for sample collection during the development of the regulation. However, we recognized that railroad operations throughout the country present diverse situations. Compliance with a set time limitation could prove impossible in remote rural areas, given the combination of supervisor response time, decisional time, and transportation to a medical facility. It could result in loss of toxicology results in cases where acquisition of testing data is clearly desirable. On the other hand, the same time limitation could come to be viewed as representing acceptable performance under other circumstances where substantially more prompt collection might otherwise be accomplished.

Given existing information, FRA is not persuaded that a time limitation with reporting requirement would, in fact, hasten collection. The Board, for instance, has not stated whether any significant portion of the 46 accidents it investigated involved "inadequate management direction," as opposed to other, more legitimate, causes of delay. NTSB/SS-88/04 at 33-34. The Board's recommendation would result in the filing of scores of additional reports on an annual basis. But it is not clear that this information would be truly useful for compliance purposes, and we have had no difficulty acquiring such information upon request. FRA already determines the time intervals between the accident and sample collection, and our field resources can be targeted to those cases where there is significant disparity between the circumstances and the particular interval in question.

We are also very concerned that a set time limitation might lead to unconsidered decisions with respect to application of the criteria for testing. In administering this program, we must be equally sensitive to the rights of employees and the public.

In sum, we agree very much with the objective of the Board and will continue to work toward its achievement. However, we are unable to agree with the particular recommendation in question. We encourage the Board to reconsider the recommendation.

Recommendation R-88-32: Amend 49 CFR Part 219 to require railroads to monitor relevant behavior and performance, such as work attendance, work habits, and motor vehicle driving records, of all employees in safety-sensitive positions and to recommend to counseling those employees whose work attendance, work habits, or motor vehicle driving records are consistent with possible substance abuse.

Response:

Historically, National Driver Register (NDR) data has been available only to state authorities and employers of motor vehicle operators. Clearly, that had to change if rail employers were to be required to review driving records, since otherwise it might be necessary to query a large number of jurisdictions in order to obtain reasonably complete information. Therefore, in 1987 the Department of Transportation proposed legislation to provide access to the NDR with respect to the driving records of railroad employees covered by the Hours of Service Act. The Senate passed legislation embodying this proposal on November 5, 1987, and the House followed suit with its own rail safety legislation on February 3, 1988. The conference committee placed the NDR provision in the locomotive engineer qualification provision and limited access to information on engineers. The President signed the legislation, the Rail Safety Improvement Act of 1988, PL 100-342, on June 22.

FRA is currently developing a notice of proposed rulemaking to implement the new legislative requirements. We believe our action will more than satisfy the intent of the Board's recommendation with respect to the most critical group of railroad employees, and we invite the Board to actively participate in the rulemaking proceeding.

The challenges involved in monitoring job performance are more difficult. FRA requires documentation of job performance through our requirement for operational tests and inspections (49 CFR Part 217). Railroads uniformly maintain records of attendance, leave, operating rule violations, and other infractions. Sound management practice mandates periodic review of this data to identify deteriorating performance and to take appropriate action. Railroad personnel departments understand the importance of this technique. It is part of sound management practice, and we have consistently recommended it to railroad companies. The Board's recommendation to AAR should be of substantial assistance in this regard. But whether one can (or should) take this sound management practice and embody it in a Federal regulation is an entirely different issue.

To survive judicial scrutiny, a Federal regulation will likely be required to correlate conduct triggering management responsibilities to a reasonable likelihood of substance abuse. In addition, the definition of triggering conduct will likely be required to have a high degree of specificity. While we all recognize that attendance patterns, work habits, and motor vehicle driving records can be a sign of substance abuse, it is not at all clear that any regulatory agency could define the type of conduct that creates that correlation with sufficient specificity, or adequately determine the point at which such performance decrement is a reasonable cause for suspicion of substance abuse, to pass judicial muster. It is, in other words, one thing to say that specific action should be required for "those employees whose work attendance, work habits, or motor vehicle driving records are consistent with possible substance abuse." It is quite another thing to define the point at which these situations do in fact become "consistent with possible substance abuse."

Moreover, mandating a review will not necessarily produce the outcome that FRA and the Board would desire. Judgment must be applied in distinguishing effects of ill health, substance abuse, job dissatisfaction, and other factors. In some cases, indicators may not be sufficiently strong to provide a basis for intervention. In those cases, FRA could not effectively enforce any requirement for follow through. Even where the performance decline is well documented and the employer has adequate leverage to intervene through a medical or employee assistance evaluation (or both), the remedial action taken must ultimately be based on professional judgment after consideration of a variety of factors, most of which should remain confidential. Distinguishing these cases from the former, and drawing a regulatory line between them, would be difficult enough. Monitoring to ascertain that follow through in the latter case is adequate would often be unfeasible, and even where the information could be acquired, it is not at all clear that FRA's judgment on the propriety of response would be any better than the carrier's in the normal case. And defining a proper response with the necessary regulatory specificity would be no small challenge.

The bottom line is that we agree very strongly with the objective the Board is attempting to accomplish through this recommendation. We are prepared to do everything reasonably possible to accomplish that objective. Our problem with the form of the recommendation lies in the fact that embodying it in a legally sustainable regulation is a herculean challenge.

We are prepared, however, to redouble our efforts to lead the railroad industry into this type of sound management practice, and are prepared to work with the Board to accomplish that objective. In response to this recommendation, we will include this element in all future railroad system assessments, and make improvement of the monitoring system a major element of assessment followup where we find the system to be inadequate. We would also be willing to discuss with the Board on an ongoing basis any further suggestions for ensuring the implementation of what we both believe to be a sound management practice.

Recommendation R-88-33: Amend 49 CFR Part 219, Subpart D, to require annual drug and alcohol detection training for all employees who are required to monitor fitness for duty of other railroad employees including covered (hours-of-service) employees, such as conductors, yardmasters, foremen and others.

Response:

The FRA alcohol/drug regulations currently require training of railroad supervisors who are vested with the authority to make reasonable suspicion determinations. As noted by the Board's own Safety Study, all railroads surveyed had training programs in place for drug use symptoms. These programs typically cover alcohol as well. Operation Red Block training programs in place on several major railroads also provide valuable information to rank and file employees who are responsible for making further dissemination in their workplaces. As the Board has documented, implementation of the Federal rule has spurred additional innovative programs to inform employees of the risks posed by alcohol and drugs. FRA will continue to encourage and promote these forms of training and welcomes the Board's support and encouragement of these initiatives.

The principal difference between this recommendation and the current rule text appears to lie in the recommendation for annual detection training. The current rule requires training, but does not require that it be repeated on an annual basis. We have seen nothing in the record suggesting that retention capacity for the kind of information provided in these training courses is so short that annual retraining should be mandatory. At the same time, we believe that the Board has raised a valid point in suggesting that training, once administered, may not be sufficient for the working life of the supervisor trained. We have nothing in the record from past hearings that would provide reliable guidance on whether and how often refresher training should be provided. Since the current rule has only been in effect for 3 years, the training administered under that rule is reasonably current. But if the record does not yet suggest that retraining should be required at some point, logic suggests that it may be. And we are willing to explore this issue in our next oversight hearing on the alcohol and drug rule.

It had originally been our intention to do annual oversight hearings on the rule, so we could fine tune its procedures. We did in fact hold such a hearing at the conclusion of its first year in force. But the pendency of the litigation, and the consequent inability to consider changes in the rule, made the continuation of the annual hearing a process of questionable value. We do intend to resume that process, however, when the litigation is completed, and will include the question of whether and how frequently retraining should be administered on the schedule of issues on which comment is requested.

US Department
of Transportation

**Federal Railroad
Administration**

Office of the Administrator

400 Seventh St., S.W.
Washington, D.C. 20590

OCT 6 1989

Log R-604

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R-88.31
Not. 4885

Mr. James L. Kolstad
Acting Chairman
National Transportation Safety Board
800 Independence Avenue, S.W.
Washington, D.C. 20594

Dear Mr. Chairman:

This is in reference to your letter citing the August 5, 1988 derailment of an Amtrak train in a remote area of northern Montana as an example of the need for a four-hour deadline to obtain the toxicological samples in a mandatory alcohol and drug testing situation.

FRA is in full agreement with the Board that toxicological samples should be gathered as soon as possible after an accident. However, the process must be kept in proper perspective in recognition that there are higher priorities of public safety following a major passenger train accident.

The circumstances of the Saco, Montana accident represent an example of the conflicting priorities that can occur in these situations. The cause of the accident was apparent. The accident occurred in extremely hot weather. The engineer stated he saw a "sun kink" in the track ahead and applied the brakes in an attempt to stop the train. Unfortunately, there was insufficient stopping distance and the train derailed on the displaced track. The Amtrak train carried nearly 400 people. Ten cars derailed, five of which were on their sides. There were no fatalities, but a total of 142 persons were injured, some seriously.

The accident occurred in a small community of 250 people with no medical facilities. The injured were taken to Malta, 28 miles away with a small medical facility and Glasgow, 43 miles distant, also with a small medical facility. At both locations, the highest priority was given to treating the injured people while sample gathering was accorded a lower priority.

Further, because of the remote area, there was a lack of immediately available railroad management personnel in the Saco area. The nearest Amtrak official is located at Shelby, Montana, 220 miles away. The nearest Burlington Northern division office is located in Havre, a distance of 118 miles. Amtrak crewmembers were the only railroad personnel available to begin initial rescue work. Some of the employees were injured but they worked to assess the situation, report on the radio, open windows, help passengers get out of the damaged railcars and assist the injured and elderly. Your letter also is critical of the railroad for stopping at a yard office to dispatch speed tapes while enroute to the hospital with the Amtrak crew. The yard office was one block out of the direct route to the medical facilities, causing little delay.

Assessing all the circumstances of this accident, FRA believes that the preservation of life and assistance to elderly passengers was of first priority.

We continue to believe that delayed toxicological collections have not been a serious or persistent post-accident testing problem. The vast majority are accomplished in a timely manner, and we continue to monitor the railroads in this regard. We are not persuaded that a regulatory time limitation would hasten collections. If that situation changes on the basis of our monitoring timeliness of collections we are prepared to deal directly with the railroad(s) involved.

I appreciate your interest in railroad safety and request that you close this recommendation.

Sincerely yours,

Gilbert E. Carmichael
Administrator

AMTRAK RECOMMENDATIONS

Mr. COUGHLIN. What actions has Amtrak taken on your recommendations related to the January 1988 accident at Chester, Pennsylvania?

Mr. KOLSTAD. We made four recommendations as a result of that accident. FRA has responded to two of them dealing with Amtrak supervision and management of tower operations, but there are two others involving train operations in the northeast corridor to which they have not responded.

STOCKTON, CA, AMTRAK ACCIDENT

Mr. COUGHLIN. What is the status of your investigation of the December 1989 Amtrak crash in Stockton, California, and what have you learned to date?

Mr. KOLSTAD. As you know, Mr. Coughlin, the locomotive engineer, the assistant engineer and the truck driver were killed in this accident, and we had about 60 passengers that were injured.

We know that the crossing was protected by an automatic gate and cantilevered flashing lights and bells. During the on scene investigation we determined that the crossing protection was functioning at the time of the accident, but there was a dense fog in the area at the time. We're in the process of conducting depositions of several principals involving this accident.

65-MILE-PER-HOUR SPEED LIMIT

Mr. COUGHLIN. We'll turn to highways.

NHTSA recently reported that the 1988 interstate highway fatalities increased by 31 percent when compared to 1986 in those states that increased the speed limit to 65 miles-an-hour. This is disturbing.

Last year you stated that you needed another year's data before you could take a position on this issue. Now that you have that data for another year, what is your position?

Mr. KOLSTAD. Mr. Coughlin, this is a matter about which the Board has simply not yet taken a position. Perhaps we should, but we have not yet.

Mr. COUGHLIN. Do you have a personal position?

Mr. KOLSTAD. I don't. I think there is such a widely diverse enforcement of the speed limits. There are situations in some states in which there is a 65 limit that is enforced at 75. There are other states that have 55 limits that allow 65 miles per hour. So it depends upon what the state is enforcing and I think it depends a lot on where you have your 65 miles per hour limits.

I don't know whether 65 is appropriate for the Beltway, but for some of the stretches in Wyoming and Montana, it may be appropriate.

Mr. COUGHLIN. Would the Board intend to take a position on this? It would seem there's some potential increase in fatalities.

Mr. KOLSTAD. I think it would probably be prudent for the Board to take a position on it.

Mr. COUGHLIN. I take it you're not yet ready to endorse legislation to roll back the speed limit?

Mr. KOLSTAD. No, sir.

LIGHT TRUCKS AND VANS

Mr. Coughlin. Last year, you indicated that you intended to comment on NHTSA's proposed rule that would apply the 208 passive restraint standards to light trucks and vans. Did you comment? If so, what were your comments?

Mr. Kolstad. We think that it makes no sense to have standards for automobiles that are not also applicable to light vans and trucks, particularly inasmuch as these vehicles have become so commonplace a replacement for the station wagon. We think that they should be extended.

Mr. Coughlin. Did you so comment to NHTSA?

Mr. Kolstad. We have not commented officially to them. We have had conversations with them.

Mr. Coughlin. Are you going to?

Mr. Kolstad. Yes, sir.

SIDE IMPACT NPRM

Mr. Coughlin. Another rulemaking that we have been interested in is NHTSA's side impact NPRM. Do you believe NHTSA should have moved more rapidly in this area?

Mr. Kolstad. Yes, we do. We did not comment on those rulemakings because of a lack of adequate accident data. But again, this is an area that we think is important and would be a safety benefit.

TRUCK DRIVER FATIGUE

Mr. Coughlin. Your recent heavy truck study indicated that driver fatigue was the most frequently cited cause of accidents. What do you believe should be done about this problem?

Mr. Kolstad. One of the insidious things, of course, about fatigue is that it also is tied in with the use of drugs. We found that if the truck driver was fatigued that he would tend to rely upon stimulants to keep him awake.

One of the things that we recommended was the use of a tachograph, in other words, a recording device, in the cab of the truck to record when the vehicle is actually in operation and when it's not so that you can do a better job of enforcing the hours of service of these people.

We also think that we need to do a better job of looking into those shippers, dispatchers, receivers and brokers who are establishing unreasonable time limits for truckers to try and meet. Part of the problem rests on their shoulders as well.

MOTOR CARRIER SAFETY PROGRAM

Mr. Coughlin. What is your assessment of the Federal Highway Administration's motor carrier safety program?

Mr. Kolstad. We think that they're moving well ahead. We're very pleased with the commercial driver legislation, but we think that there still is inadequate staffing and we're concerned about that because of the need to do a better job of enforcing the commercial motor vehicle legislation.

Mr. Coughlin. Would the staffing be at the federal level or at the state level?

Mr. KOLSTAD. At the federal level. And the reason is, again, to enforce the commercial motor vehicle safety act provisions.

BRIDGE SAFETY

Mr. COUGHLIN. In your justifications, you state that in the last six years the Board has investigated the collapse of six major highway bridges over water, three of which have occurred within the last twelve months. Are there any common problems you've identified in these investigations? If so, have any actions been taken to correct these problems?

Mr. KOLSTAD. The investigation of these accidents found deficiencies in the bridge superstructure and the substructure elements that were either not detected by state inspection programs or that weren't corrected after the problem was revealed. We've made a number of recommendations to the Federal Highway Administration concerning that problem.

Mr. COUGHLIN. Are there any specific common problems that you've seen?

Mr. KOLSTAD. One problem is a lack of an underwater inspection program that we think is inadequate and the other is that we have found several instances in which bridge inspection reports identified problems with bridges that simply were not followed up on. In other words, instances in which the bridge inspectors did a good job, identified problems and then nothing was done.

Mr. COUGHLIN. What recent recommendations have you made to the Federal Highway Administration regarding bridge inspections and what actions have they taken?

Mr. KOLSTAD. We've made a number of recommendations to address this unclear situation in which inspectors have done either an inadequate job or in a case where inspection deficiencies have not been followed up on. In other cases, we've found unclear inspection criteria, therefore we've made recommendations to clarify inspection criteria, so that inspectors knew what to inspect.

To date, we've made seventeen recommendations that have been classified as acceptable in terms of the response. Most remain open, though and we're continuing to work with FHWA on this problem.

Mr. COUGHLIN. Could you put a list of the open ones in the record, please?

Mr. KOLSTAD. You bet.

[The information follows:]

NATIONAL TRANSPORTATION SAFETY BOARD

REPORT DATE: 3/05/90

REPORT NO.: AAR-89-03
ACCIDENT DATE: Apr-28-1988
ACCIDENT CITY: MAUI
ACCIDENT STATE: HI

RECNO	ABSTRACT
A-89-053 A-89-054 A-89-055 A-89-056 A-89-057 A-89-058 A-89-059 A-89-060 A-89-061 A-89-062 A-89-063 A-89-064 A-89-065 A-89-066 A-89-067 A-89-068 A-89-069	ON APRIL 28, 1988, AT 1346, A BOEING 737-200, N73711, OPERATED BY ALOHA AIRLINES INC., AS FLIGHT 243, EXPERIENCED AN EXPLOSIVE DECOMPRESSION AND STRUCTURAL FAILURE AT 24,000 FEET, WHILE EN ROUTE FROM HILO, TO HONOLULU, HAWAII. APPROXIMATELY 18 FEET FROM THE CABIN SKIN AND STRUCTURE AFT OF THE CABIN ENTRACNE DOOR AND ABOVE THE PASSENGER FLOORLINE SEPARATED FROM THE AIRPLANE DURING FLIGHT. THERE WERE 89 PASSENGERS AND 6 CREWMEMBERS ON BOARD. ONE FLIGHT ATTENDANT WAS SWEPT OVERBOARD DURING THE DECOMPRESSION AND IS PRESUMED TO HAVE BEEN FATALLY INJURED; 7 PASSENGERS AND 1 FLIGHT ATTENDANT RECEIVED SERIOUS INJURIES. THE FLIGHTCREW PERFORMED AN EMERGENCY DESCENT AND LANDING AT KAHULUI AIRPORT ON THE ISLAND OF MAUI.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-053
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: PROVIDE SPECIFIC GUIDANCE AND PROPER ENGINEERING SUPPORT TO PRINCIPAL MAINTENANCE INSPECTORS TO EVALUATE MODIFICATIONS OF AIRLINE MAINTENANCE PROGRAMS AND OPERATIONS SPECIFICATIONS WHICH PROPOSE SEGMENTING MAJOR MAINTENANCE INSPECTIONS.

RESPONSE:

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-054
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: IDENTIFY OPERATORS WHOSE AIRPLANE USE DIFFERS SIGNIFICANTLY FROM THE FLIGHT CYCLE VERSUS FLIGHT TIME RELATIONSHIP UPON WHICH THE MAINTENANCE PLANNING DOCUMENT WAS PREDICATED, AND VERIFY THAT THEIR MAINTENANCE PROGRAMS PROVIDE TIMELY DETECTION OF BOTH CYCLE AND TIME RELATED DEFICIENCIES.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-055
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REVISE THE REGULATIONS GOVERNING THE CERTIFICATION OF AVIATION MAINTENANCE TECHNICIAN SCHOOLS AND THE LICENSING OF AIRFRAME AND POWERPLANT MECHANICS TO REQUIRE THAT THE CURRICULUM AND TESTING REQUIREMENTS INCLUDE MODERN AVIATION INDUSTRY TECHNOLOGY.

NATIONAL TRANSPORTATION SAFETY BOARD

REPORT DATE: 3/05/90

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-056
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REQUIRE FORMAL CERTIFICATION AND RECURRENT TRAINING OF AVIATION MAINTENANCE INSPECTORS PERFORMING NONDESTRUCTIVE INSPECTION FUNCTIONS. FORMAL TRAINING SHOULD INCLUDE APPRENTICESHIP AND PERIODIC SKILL DEMONSTRATION.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-057
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REQUIRE OPERATORS TO PROVIDE SPECIFIC TRAINING PROGRAMS FOR MAINTENANCE AND INSPECTION PERSONNEL ABOUT THE CONDITIONS UNDER WHICH VISUAL INSPECTIONS MUST BE CONDUCTED. REQUIRE OPERATORS TO PERIODICALLY TEST PERSONNEL ON THEIR ABILITY TO DETECT THE DEFINED DEFECTS.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-058
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: DEVELOP A CONTINUING INSPECTION PROGRAM FOR THOSE B-

737 AIRPLANES THAT HAVE INCORPORATED LAP JOINT TERMINATING ACTION (PROTRUDING HEAD SOLID FASTENERS INSTALLED IN THE UPPER ROW OF ALL LAP SPLICES) TO DETECT ANY FATIGUE CRACKING THAT MAY DEVELOP IN THE MIDDLE OR LOWER ROWS OF FUSELAGE LAP JOINT FASTENER HOLES (FOR BOTH THE INNER AND OUTER SKIN PANELS) OR IN THE ADJACENT TEAR STRAP FASTENER HOLES, AND DEFINE THE TYPES OF INSPECTIONS, INSPECTION INTERVALS, AND CORRECTIVE ACTIONS NEEDED FOR CONTINUING AIRWORTHINESS.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-059
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: DEVELOP A MODEL PROGRAM FOR A COMPREHENSIVE CORROSION CONTROL PROGRAM TO BE INCLUDED IN EACH OPERATOR'S APPROVED MAINTENANCE PROGRAM.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-060
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ISSUE AN AIRWORTHINESS DIRECTIVE FOR B-737 AIRPLANES EQUIPPED WITH CARBON STEEL ENGINE CONTROL CABLES TO PERIODICALLY INSPECT THE CABLES FOR EVIDENCE OF CORROSION AND IF THERE IS SUCH EVIDENCE, TO ACCOMPLISH THE ACTIONS SET FORTH IN BOEING SERVICE LETTER 737-SL-76-2-A.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-061
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REQUIRE THAT AIR CARRIER MAINTENANCE DEPARTMENTS USE THE ENGINEERING SERVICES AVAILABLE FROM THE MANUFACTURER OR OTHER SOURCES TO PERIODICALLY EVALUATE THEIR MAINTENANCE PRACTICES INCLUDING STRUCTURAL REPAIR, COMPLIANCE WITH AIRWORTHINESS DIRECTIVES AND SERVICE BULLETINS, PERFORMANCE OF INSPECTION AND QUALITY ASSURANCE SECTIONS AND OVERALL EFFECTIVENESS OF CONTINUING AIRWORTHINESS PROGRAMS.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-062
DATE OF ISSUE: Jul-14-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REVISE THE NATIONAL AVIATION SAFETY INSPECTION PROGRAM OBJECTIVES TO REQUIRE THAT INSPECTORS EVALUATE NOT ONLY THE PAPERWORK TRAIL, BUT ALSO THE ACTUAL CONDITION OF THE FLEET AIRPLANES UNDERGOING MAINTENANCE AND ON THE OPERATIONAL RAMP.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-063
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REQUIRE NATIONAL AVIATION SAFETY INSPECTION PROGRAM TEAMS TO INDICATE RELATED SYSTEMIC DEFICIENCIES WITHIN AN OPERATORS MAINTENANCE ACTIVITY WHEN LESS THAN SATISFACTORY FLEET CONDITION IS IDENTIFIED.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-064
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: EVALUATE THE QUALITY OF FAA SURVEILLANCE PROVIDED BY THE PRINCIPAL INSPECTORS AS PART OF THE NATIONAL AVIATION SAFETY INSPECTION PROGRAM.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-065
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: INTEGRATE THE NATIONAL AVIATION SAFETY INSPECTION PROGRAM TEAM LEADER IN THE CLOSEOUT OF THE TEAM FINDINGS.

NATIONAL TRANSPORTATION SAFETY BOARD

REPORT DATE: 3/05/90

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-066
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ENHANCE THE STATURE AND PERFORMANCE OF THE PRINCIPAL INSPECTORS THROUGH; (1) FORMAL MANAGEMENT TRAINING AND GUIDANCE, (2) GREATER ENCOURAGEMENT AND BACKING BY HEADQUARTERS OF EFFORTS BY PRINCIPAL INSPECTORS TO SECURE THE IMPLEMENTATION BY CARRIERS OF LEVELS OF SAFETY ABOVE THE REGULATORY MINIMUMS, (3) IMPROVED ACCOUNTABILITY FOR THE QUALITY OF THE SURVEILLANCE AND (4) ADDITIONAL HEADQUARTERS ASSISTANCE IN STANDARDIZING SURVEILLANCE ACTIVITIES.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-067
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: REQUIRE THAT ALL TURBOJECT TRANSPORT CATEGORY AIRPLANES CERTIFICATED IN THE FUTURE, RECEIVE FULL SCALE STRUCTURAL FATIGUE TESTING TO A MINIMUM OF TWO TIMES THE PROJECTED ECONOMIC SERVICE LIFE. ALSO REQUIRE THAT ALL CURRENTLY CERTIFICATED TURBOJECT TRANSPORT CATEGORY AIRPLANES THAT HAVE NOT BEEN FATIGUE TESTED TO TWO LIFETIMES, BE SUBJECTED TO SUCH TESTING. AS A RESULT OF THIS TESTING AND SUBSEQUENT INSPECTION AND ANALYSIS, REQUIRE MANUFACTURERS TO IDENTIFY STRUCTURE SUSCEPTIBLE TO MULTIPLE SITE DAMAGE AND ADOPT INSPECTION PROGRAMS APPROPRIATE FOR THE DETECTION OF SUCH DAMAGE.

NATIONAL TRANSPORTATION SAFETY BOARD

REPORT DATE: 3/05/90

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-068
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: DISCONTINUE CLASSIFICATION OF FUSELAGE SKIN AS "MALFUNCTION EVIDENT" OR "DAMAGE OBVIOUS" ON SUPPLEMENTAL STRUCTURAL INSPECTION DOCUMENTS. IN ADDITION, REVIEW ALL THE REMAINING STRUCTURALLY SIGNIFICANT ITEMS IN THE DAMAGE OBVIOUS CATEGORY FOR POSSIBLE INCLUSION IN THE SUPPLEMENTARY INSPECTION PROGRAM.

LOG NUMBER: 2175
RECOMMENDATION NUMBER: A-89-069
DATE OF ISSUE: Jul-21-1989
NTSB STATUS: OPEN - RESPONSE RECEIVED
CLOSEOUT DATE:

ADDRESSEE: FAA
DATE OF RESPONSE: 10/24/89

RECOMMENDATION SUBJECT:

RESPONSE:

THE NTSB RECOMMENDS THAT THE FEDERAL AVIATION ADMINISTRATION: ISSUE AN AIR CARRIER OPERATIONS BULLETIN FOR ALL AIR CARRIER FLIGHT TRAINING DEPARTMENTS TO REVIEW THE ACCIDENT SCENARIO AND REITERATE THE NEED TO ASSESS AIRPLANE AIRWORTHINESS AS STATED IN THE OPERATORS MANUAL BEFORE TAKING ACTION THAT MAY CAUSE FURTHER DAMAGE OR BREAKUP OF A DAMAGED AIRFRAME.

US Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

890858
A-89-53 thru -69
not. 4886A

OCT 24 1989

The Honorable James L. Kolstad
Acting Chairman, National Transportation
Safety Board
800 Independence Avenue, SW.
Washington, DC 20594

Dear Mr. Kolstad:

This is in response to Safety Recommendations A-89-53 through -69 issued by the Board on July 21, 1989. These safety recommendations were issued as a result of the Board's investigation of an accident on April 28, 1988, involving a Boeing 737-200, N73711, operated by Aloha Airlines, Inc. The airplane experienced an explosive decompression and structural failure at 24,000 feet while en route from Hilo, Hawaii, to Honolulu, Hawaii. Approximately 18 feet of the cabin skin and structure aft of the cabin entrance door and above the passenger floorline separated from the airplane during flight. Of the 89 passengers and 6 crewmembers on board, 7 passengers and 1 flight attendant received serious injuries, and 1 flight attendant was swept overboard during the decompression and is presumed to have been fatally injured. The flightcrew performed an emergency descent and landing at Kahului Airport on the Island of Maui.

Although the Federal Aviation Administration (FAA) has responded to each safety recommendation below, I would like to apprise the Safety Board of the overall efforts that the FAA has taken or is taking to address the aging aircraft issue. In June 1988, the FAA convened the Aging Airplane Conference to generate new ideas for a fresh approach for control of aircraft structure. As a result of the conference, a government/industry aging aircraft task force was established to lead and organize the work groups to explore specific areas for appropriate action. The task force revealed the need to mandate development of certain manufacturers' service bulletins and to establish standards for corrosion prevention and control. The task force also established an FAA Aging Aircraft Management Team consisting of engineering, maintenance, human factors, and research and development experts. The task force also developed an extensive research and development plan composed of 26 projects. An Aging Fleet Evaluation Program has been established to study the inspection programs used by operators to develop policies and regulations to improve the structural inspection process for both air carrier and commuter aircraft.

A-89-53. Provide specific guidance and proper engineering support to Principal Maintenance Inspectors to evaluate modifications of airline maintenance programs and operations specifications which propose segmenting major maintenance inspections.

FAA Comment. The Federal Aviation Administration (FAA) is presently examining this portion of the current airline maintenance philosophy under its Aging Fleet Evaluation Program. The evaluation will include an indepth review of the operators' maintenance programs by experienced, qualified team members. The team will determine the effectiveness of each maintenance program reviewed by a hands-on inspection of the aircraft being maintained under that program. Current worldwide industry maintenance philosophy allows the segmentation of major maintenance inspections. The aging fleet evaluation will identify the specific standards which are needed for the industry to develop and modify their structural inspection programs effectively. These standards will include provisions and limitations for segmenting major maintenance inspections without adversely affecting those standards. The results of the evaluation will prescribe whether or not engineering input is required.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-89-54. Identify operators whose airplane use differs significantly from the flight cycle versus flight time relationship upon which the Maintenance Planning Document was predicated, and verify that their maintenance programs provide timely detection of both cycle and time related deficiencies.

FAA Comment. The FAA is presently gathering and analyzing data in this area under the Aging Fleet Evaluation Program. As part of the analysis, maintenance programs are being measured for effectiveness. The results of the FAA's analysis will dictate what course of action the FAA will take.

I will apprise the Board of the FAA's course of action to address this safety recommendation as soon as the evaluation is completed.

A-89-55. Revise the regulations governing the certification of aviation maintenance technician schools and the licensing of airframe and powerplant mechanics to require that the curriculum and testing requirements include modern aviation industry technology.

FAA Comment. The FAA is considering the issuance of a notice of proposed rulemaking proposing to revise the curriculum of the aviation maintenance technician schools under 14 CFR Part 147 to include modern technology. Additionally, a review of certification requirements for aviation mechanics and repairmen under 14 CFR Part 65 is underway. This review will assess the capability of the aviation maintenance technician and repairman against the background of current and future requirements. The total job task environment will be evaluated to determine the knowledge, skills, and abilities required of maintenance technicians in order to meet the technological challenges of the future. The assessment will include evaluation of the impact of the aging fleet, new technology, equipment diversity, training requirements, and international agreements on the aviation maintenance technician/repairman.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-89-56. Require formal certification and recurrent training of aviation maintenance inspectors performing nondestructive inspection functions. Formal training should include apprenticeship and periodic skill demonstration.

FAA Comment. The FAA is reviewing this safety recommendation through its Aging Fleet Evaluation Program. The program has highlighted some of the same deficiencies outlined in this safety recommendation, and the FAA is addressing these deficiencies in the following regulatory reviews:

- During the regulatory review of 14 CFR Part 65, the FAA will assess the need for a separate mechanic rating for nondestructive inspection.
- During the regulatory review of 14 CFR Part 147, the FAA will address the need for expanded training of mechanics in the nondestructive inspection area.

A-89-57. Require operators to provide specific training programs for maintenance and inspection personnel about the conditions under which visual inspections must be conducted. Require operators to periodically test personnel on their ability to detect the defined defects.

FAA Comment. During inspection of approximately 60 aging fleet aircraft under the FAA's Aging Fleet Evaluation Program, all aspects of air carriers' and repair stations' inspector qualification, equipment, and training are being investigated. Utilization of inspector personnel and human factors aspects are also being examined. The need for specific inspector personnel training and testing requirements will be assessed during the evaluation.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-89-58. Develop a continuing inspection program for those B-737 airplanes that have incorporated lap joint terminating action (protruding head solid fasteners installed in the upper row of all lap splices) to detect any fatigue cracking that may develop in the middle or lower rows of fuselage lap joint fastener holes (for both the inner and outer skin panels) or in the adjacent tear strap fastener holes, and define the types of inspections, inspection intervals, and corrective actions needed for continuing airworthiness.

FAA Comment. The Boeing Company is developing a test program for the modification configuration of the lap joint. The FAA will review the results of the test program and take appropriate action.

I will apprise the Board of the FAA's planned action to address this safety recommendation as soon as the FAA has reviewed the results of the test.

A-89-59. Develop a model program for a comprehensive corrosion control program to be included in each operator's approved maintenance program.

FAA Comment. Each aircraft manufacturer's Maintenance Program Planning Document includes corrosion control requirements. As a portion of the FAA's Aging Fleet Evaluation Program, considerations are currently being given to, and are under study for, individual aircraft model airworthiness directives which would require incorporation of specific corrosion-related manufacturer's service bulletins. Additionally, the FAA is revising the current aircraft corrosion control advisory circular to reflect present technology and methodology. The major aircraft manufacturers are aggressively pursuing the development of corrosion control programs/documents for each model aircraft. Explicit standards will be published as a result of the analysis of the data gathered under the Aging Fleet Evaluation Program.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-89-60. Issue an Airworthiness Directive for B-737 airplanes equipped with carbon steel engine control cables to periodically inspect the cables for evidence of corrosion and if there is such evidence, to accomplish the actions set forth in Boeing Service Letter 737-SL-76-2-A.

FAA Comment. The FAA is considering the issuance of a notice of proposed rulemaking (NPRM) proposing to require a repetitive inspection of the control cable system for rust or corrosion and, if necessary, replacement of the existing carbon steel cable with a corrosion-resistant steel cable in compliance with Boeing Service Letter 737-SL-76-2-A.

I will provide the Board with a copy of any document that may be issued.

A-89-61. Require that air carrier maintenance departments use the engineering services available from the manufacturer or other sources to periodically evaluate their maintenance practices including structural repair, compliance with airworthiness directives and service bulletins, performance of inspection and quality assurance sections and overall effectiveness of continuing airworthiness programs.

FAA Comment. Present association between the manufacturers' engineering organizations and the air carriers' maintenance organizations is adequate. Air carrier engineering departments maintain a close liaison with their counterparts in the manufacturer's organizations and their maintenance department liaison with the manufacturers' service representatives. Additionally, air carriers are required by 14 CFR 121.373 to have a means to determine the overall effectiveness of their maintenance program, including structural repair, compliance with airworthiness directives and service bulletins, performance of inspection and quality assurance sections, and overall effectiveness of continuing airworthiness programs.

I plan no further action on this safety recommendation.

A-89-62. Revise the National Aviation Safety Inspection Program objectives to require that inspectors evaluate not only the paperwork trail, but also the actual condition of the fleet airplanes undergoing maintenance and on the operational ramp.

FAA Comment. The FAA currently conducts hands-on verification of actual conditions, in addition to paperwork review. Although the National Aviation Safety Inspection Program (NASIP) interim guidance highlights hands-on verification for airworthiness directive compliance, the FAA will revise this guidance to include additional emphasis to this requirement.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-89-63. Require National Aviation Safety Inspection Program teams to indicate related systemic deficiencies within an operators maintenance activity when less than satisfactory fleet condition is identified.

FAA Comment. Currently, the team leaders are briefed prior to their assigned NASIP inspection. The briefings include instructions for teams to investigate and report systemic deficiencies in a certificate holder's operation. Order 8000.68, Flight Standards National Aviation Safety Inspection Program, requires the assigned principal inspectors to investigate discrepancies to determine if systemwide problems exist. However, the FAA will thoroughly revise the NASIP interim guidance to emphasize the team leader's role in identifying systemic problems and communicating them to the certificate holding office's management personnel.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-89-64. Evaluate the quality of FAA surveillance provided by the principal inspectors as part of the National Aviation Safety Inspection Program.

FAA Comment. The NASIP is designed to do indepth inspections of air carriers and air agencies. The NASIP teams are required to report any findings contrary to the FAA regulations, even those findings which reflect on FAA-approved operator programs. The NASIP is not designed to evaluate internal FAA program operations, and the FAA does not plan to include this evaluation in the NASIP as requested by this safety recommendation. The most appropriate vehicles for assessing the quality of inspector surveillance are the Flight Standards Service National Evaluation System and the Agency Performance Management System. These systems provide for a direct line of accountability for system performance through structured evaluations of program operations and personnel performance assessments based on preestablished evaluation criteria and national performance standards.

The national evaluation system is comprised of 10 regional flight standards evaluation programs and the national evaluation program. The respective regional flight standards divisions are responsible for conducting evaluations at the district office level and for providing feedback to headquarters on the outcome of these evaluations. These regional programs are designed to assess to what extent the district offices implement flight standards programs in accordance with national policies, procedures, and regulations. In some instances, regional evaluations also measure the effectiveness of program implementation and line operations.

The national evaluation program is geared to measure both regional compliance and the overall effectiveness of flight standards programs nationwide. Although there have been resource weaknesses in this national system in the past, it is expected that all 10 regions and national headquarters will be fully staffed by the end of fiscal year 1990. The FAA also plans to develop an evaluation handbook during fiscal year 1990 which will establish standardized evaluation criteria and methodologies for conducting evaluations and quality assurance assessments throughout the flight standards system.

The agency performance management system is the vehicle for assessing individual inspector performance, both quantitatively and qualitatively. Under Project SAFE, national standardized performance standards have been developed for principal operations inspectors (operations, avionics, and maintenance). These standards are the benchmark for which all principal inspectors' performance are appraised. During fiscal year 1990, a comprehensive evaluation is scheduled to measure the use, applicability, and effectiveness of these standards in assuring quality performance throughout the inspector work force. Changes to this accountability system will be made, as appropriate, based on the evaluation findings.

The FAA is also working with the Office of Aviation Safety to develop safety performance indices for determining the margin of safety in the operating environment. There are also collaborative initiatives to develop quality assurance measures for internal FAA safety programs. These safety indices and quality assurance measures should strengthen the FAA's quality control systems for both internal progams and industry operations.

I believe that the FAA's current procedures and practices satisfy completely the intent of this safety recommendation.

A-89-65. Integrate the National Aviation Safety Inspection Program team leader in the closeout of the team findings.

FAA Comment. Based on the structure of the NASIP, the FAA cannot comply with this safety recommendation. The NASIP teams are composed of field inspectors. Once the inspection is completed, the inspectors return to their daily activities. If the FAA integrated the team leaders into the followup process, there would be no time to perform their current job function.

The FAA's Flight Standards Service is responsible for ensuring that all corrective action is accomplished. Based on the original NASIP findings, the regional offices report on the corrective action. The FAA is implementing an automated tracking system to record all NASIP followup actions. I believe that this system will improve the quality and control of the NASIP process. It is anticipated that this tracking system will be implemented by the end of 1989.

I consider the FAA's action to be completed, and I plan no further action.

A-89-66. Enhance the stature and performance of the principal inspectors through; (1) formal management training and guidance, (2) greater encouragement and backing by headquarters of efforts by principal inspectors to secure the implementation by carriers of levels of safety above the regulatory minimums, (3) improved accountability for the quality of the surveillance and (4) additional headquarters assistance in standardizing surveillance activities.

FAA Comment. This recommendation parallels the purpose and goals of Project SAFE. Project SAFE is dedicated to improving management abilities at the field level and developing flight standards programs for realization of its mission and accountability for those programs. Specifically, under the auspices of Project SAFE, the FAA is addressing the substance of the Board's recommendation. The FAA is developing a principal inspector training course. Additionally, the FAA conducts, through contract, a supervisory and management training course which includes district office maintenance unit managers who are first-line supervisors for the principal inspectors.

Under Project SAFE, a new handbook system for maintenance inspectors is under development using the job-task analysis concept. Some of this material has been released to the field and the remainder will be completed and published in the near future. It is anticipated that information and standards developed by the Aging Fleet Evaluation Program will be encompassed in these handbooks.

I believe that the FAA's existing Project SAFE meets the intent of this safety recommendation, and I plan no further action.

A-89-67. Require that all turbojet transport category airplanes certificated in the future, receive full scale structural fatigue testing to a minimum of two times the projected economic service life. Also require that all currently certificated turbojet transport category airplanes that have not been fatigue tested to two lifetimes, be subjected to such testing. As a result of this testing and subsequent inspection and analysis, require manufacturers to identify structure susceptible to multiple site damage and adopt inspection programs appropriate for the detection of such damage.

FAA Comment. The FAA is considering the issuance of an NPRM proposing to revise 14 CFR 25.571 (damage tolerance rule) to require full-scale fatigue testing for certification of transport category airplanes. If the FAA proceeds with NPRM action, companion Advisory Circular (AC) 25.571-1B will be revised accordingly and issued concurrently with the NPRM. The FAA is also considering proposing that two lifetimes of fatigue testing be conducted unless it is determined that more than two lifetimes are necessary to ensure adequate margins for multiple site damage. The FAA believes that two lifetimes of testing should be adequate for conventional structures. More testing may be necessary depending on the overall confidence in the loading spectrum and the uniqueness of the structural design.

Several models of aging airplanes are presently undergoing fuselage pressure cycle fatigue testing to ensure that multiple site damage will not be a problem for the current fleet of older airplanes. The FAA is considering a retroactive requirement to fatigue test all models of older airplanes, unless they have already been fatigue tested for two lifetimes. For those airplanes exceeding their original design service lifetimes, an adequate fatigue life margin must be maintained to ensure that multiple site damage will not be a problem as long as the airplanes remain in service. Depending on the overall confidence in the test program to avoid multiple site damage, this fatigue life margin may not always be one lifetime above the high time airplane.

I will provide the Board with a copy of any document that may be issued.

A-89-68. Discontinue classification of fuselage skin as "malfunction evident" or "damage obvious" on supplemental structural inspection documents. In addition, review all the remaining structurally significant items in the damage obvious category for possible inclusion in the Supplementary Inspection Program.

FAA Comment. The FAA agrees that fuselage skin can no longer be classified as "malfunction evident" or "damage obvious" in a supplemental structural inspection document. At the time this classification was made, it was known that nicotine stains provided a reliable indication of small cracks in a fuselage pressure vessel. Establishment of large no-smoking areas on most airplanes, and a total ban on smoking for certain flights, has gradually invalidated this structural inspection technique. Greater reliance was then placed on venting or flapping as the "damage obvious" crack indicator. This technique worked well in ground tests and in some in-service incidents, but proved to be hazardous in other cases. Therefore, critical details not already required to be inspected will be added to the supplemental structural inspection documents, and reliance on pressure venting as an inspection method will no longer be allowed. Fuselage structure which incorporates a pressure venting design will no doubt contribute to overall safety and is still encouraged even though no credit is given toward inspections.

A-89-69. Issue an Air Carrier Operations Bulletin for all air carrier flight training departments to review the accident scenario and reiterate the need to assess airplane airworthiness as stated in the operators manual before taking action that may cause further damage or breakup of a damaged airframe.

FAA Comment. The FAA agrees with this safety recommendation and will issue an air carrier operations bulletin (ACOB) to advise air carriers to emphasize the importance of adhering to the procedures and limitations contained in their operations manuals and aircraft flight manuals. The FAA will request that the air carriers present to their crewmembers a broad view of the role cockpit resource management plays in emergency situations for which there are no "book answers." The FAA will also request that the air carrier training departments accentuate the positive aspects that cockpit resource management played in the successful outcomes of recent aviation accidents, including the United Airlines B-747 which lost its cargo door over the Pacific, the Aloha Airlines B-737 which experienced major structural damage, and the United Airlines DC-10 which lost its number two engine severing several of its hydraulic lines and rendering most of the flight controls inoperative.

I will provide the Board with a copy of the ACOB as soon as it is issued.

Sincerely,

James B. Busey
Administrator

ALTON, TX HIGHWAY ACCIDENT

Mr. **Coughlin**. What is the status of your investigation of the September 21, 1989, school bus accident in Alton, Texas?

Mr. **Kolstad**. We're in the process of currently drafting the final report on this investigation and it's going to be completed some time this spring.

UMTA RECOMMENDATIONS

Mr. **Coughlin**. Turning to transit, last year, it was indicated over the years UMTA's acceptance rate has been as low as that of the Federal Railroad Administration. Has UMTA's acceptance rate changed any during the past year? If so, in what areas and if not, what efforts are you making to get UMTA to be more responsive?

Mr. **Kolstad**. I don't think that the acceptance rate has changed. Most of our differences with UMTA have centered primarily on the issue of UMTA's authority to regulate public transportation systems and we felt that they had the authority; they said they didn't. They went to court and maintained they did and the court has come back and said that they did not. We understand that Secretary Skinner is asking for new authority to clarify what UMTA's regulatory authority should be.

Mr. **Coughlin**. UMTA has basically no safety responsibility, does it at the present time?

Mr. **Kolstad**. Well, that's basically true, yes.

Mr. **Coughlin**. It doesn't have the same kind of responsibilities as the FRA or FAA in terms of their regulatory ability.

Mr. **Kolstad**. Absolutely.

Mr. **Coughlin**. You stated last year that you believed that UMTA should be setting minimal safety standards as conditions for their grant awards. Are you making any progress with UMTA in that area?

Mr. **Kolstad**. I'd have to say no.

Mr. **Sweedler**. We're working with them and the recommendation is in an open, acceptable action status so we are progressing. We haven't come to a final closure on it but we are progressing. It is interesting to note that we do not have any unacceptable recommendations pending with UMTA. They're all in the open, acceptable status so we have, as previously mentioned, improved our relationship with them and their acceptance rate has gone up.

SEPTA ACCIDENTS

Mr. **Coughlin**. Your justifications indicate that you're investigating several SEPTA accidents. What recommendations have you made as a result of these investigations?

Mr. **Kolstad**. The recommendations mainly concern the human performance area. I might have Mr. Banks comment on the specifics of those recommendations.

Mr. **Banks**. Mr. Coughlin, we are looking into four occurrences at the current time where we feel that human performance plays a big role in it. For example, SEPTA accidents on November 12, 1989, January 29, 1990, February 12, 1990 and February 16, 1990 are the ones that we are currently looking into. These have all been collisions. Of course, this raises the flag of how the two trains come together on the same track in colliding with one another.

Next week, the team will be going up there again with human performance capability to take a look exactly, to evaluate all four of these occurrences, since they all happened within such a short period of time.

The other recommendations that have been made in the past to SEPTA have been generally complied with. Now, you're fully aware that we have the situation up there where they have the light rail, the heavy rail, and then the single car operations. So that's the area that we're focusing on right now.

By the way, they have been very cooperative with us. They have not tried to impede our investigations at all, and we're looking forward to a good analysis of the four occurrences that I've just mentioned to you.

Mr. COUGHLIN. Are those four all heavy rail?

Mr. BANKS. No, sir, some of them involved—in fact, the light rail vehicles. In three cases, they are light rail.

Mr. COUGHLIN. Three of the four are light rail.

Mr. BANKS. Yes, sir.

Mr. KOLSTAD. Two of the areas, Congressman, I might just mention that we have identified are the training of operating employees and the adequacy of supervision.

Mr. COUGHLIN. Are these problems unique to SEPTA or is this something prevalent throughout the transit industry?

Mr. BANKS. I want to be very careful how to answer that question, sir. It's showing up at SEPTA in a greater number at the present time. Now whether or not there's some of them that's happening on the other systems that we are not getting notified on—I would be a little bit reluctant to say that SEPTA only is having the problem, because there's a possibility that we are not getting notified on some of the ones that are taking place.

ACCIDENT NOTIFICATION

Mr. COUGHLIN. How do you get notified of an accident?

Mr. BANKS. Well, first of all, let's concern ourselves with the SEPTA. Right now, we have established in each one of the regional offices, a contact person within the regional office plus a contact person within the operators itself in SEPTA. Most of the time, that situation will develop where we will get notified within a reasonable amount of time. I'm speaking now of three to four hours.

Also, we have contact with the local and state police, and that's a very effective force. Any time that there's a mishap as far as the rail is concerned we go through the FRA, for example in the case involving SEPTA.

Of course the aviation portion of it we use the FAA's communication system.

Mr. KOLSTAD. Dr. Loeb would also like to add a comment on this.

Dr. LOEB. A couple of points. In response to your last question, we get notified primarily through the National Response Center because there is a requirement to report rail accidents to the center for the NTSB.

Mr. COUGHLIN. Light rail accidents?

Dr. LOEB. Light rail as well. Going back to the question about SEPTA and uniqueness, I think SEPTA is a bit unique in the wide variety of operations that it has, including the rail rapid, the single car operations, the Norristown high speed line, and those types of operations, including heavy rail.

But I think the frequency of accidents they're having is probably not too dissimilar from what is going on in the New York City area, and perhaps in Cleveland. The older transportation systems have more accidents than the newer systems, such as BART and Metro here and Miami-Dade.

I think we're seeing a lot of problems that are occurring because of older equipment, because of the way the system grew up, and probably as well through the criteria that existed in hiring and training the operating employees.

CSX RECOMMENDATIONS

Mr. COUGHLIN. Please update for the record the status of your recommendations on the two 1987 CSX accidents that affected service on the Washington, D.C. Metro system.

[The information follows:]

As a result of investigations of two accidents involving the CSX Railroad and the Washington Metropolitan Area Transit Authority system, the Safety Board issued two safety recommendations to the CSX Corporation (R-87-57 and -58), two safety recommendations to the Washington Metropolitan Area Transit Authority (WAMATA) (R-87-59 and -60), and one safety recommendation addressed jointly to both (R-88-15).

These safety recommendations are:

To the CSX Corporation

R-87-57: Modify the existing intrusion detection warning system to insure that the signal systems on the Metro tracks and the CSX Corporation tracks automatically display stop indications for all trains when an intrusion is detected.

Current Status: Open Acceptable Action

R-87-58: Discontinue the use of pusher locomotives on freight trains in the common corridor with the Washington Metropolitan Area Transit Authority.

Current Status: Closed—Acceptable Action

To WAMATA——

R-87-59: Raise the intrusion detection warning system to a uniform height above the top of the CSX Corporation rail beds.

Current Status: Open—Acceptable Action

R-87-60: Modify the existing intrusion detection warning system to ensure that the signal system on the metro tracks and the CSX Corporation tracks automatically display stop indications for all trains when an intrusion is detected.

Current Status: Open—Acceptable Action

Jointly to CSX Corporation and WMATA

R-88-15: Until permanent solutions to joint corridor occupancy are implemented and their safety effectiveness is assessed, develop and implement a plan to control the access of WAMATA transit trains and CSX transportation (CSXT) freight trains into the common transportation corridor where WMATA trackage lies between the two tracks of CSXT so that CSXT freight trains and WMATA transit trains do not simultaneously occupy this corridor.

Current Status: Open—Initial Response Received.

ALCOHOL AND MARINE ACCIDENTS

Mr. COUGHLIN. That completes transit, we'll go on to marine.

As we have stated, about 80 percent of all recreational boating fatalities are alcohol-related. To what extent are you satisfied with the Coast Guard's alcohol/drug use rule and the implementation of that rule?

Mr. KOLSTAD. Mr. Coughlin, we're satisfied with the rule. These fatalities are occurring in the recreational boating area, and in 1983, we had only three states that had boating while intoxicated laws. Today, we have 33 states that have passed boating while intoxicated laws and we're working with the remaining states to get tougher laws, for example sobriety check points at boat launching areas.

It's a big concern to us, because we're fatally injuring as many people in recreational boating accidents as we are in general aviation. And that's second only to highway in number of people that are being killed in a transportation mode.

Mr. COUGHLIN. Is the implementation mostly by the states?

Mr. KOLSTAD. Yes.

Mr. COUGHLIN. And you say that we are having as many fatalities in recreational boating as we are in general aviation?

Mr. KOLSTAD. Approximately the same, yes, sir.

COMMERCIAL FISHERMEN TRAINING

Mr. COUGHLIN. That's an amazing figure.

Last February, you recommended that the Coast Guard establish minimum safety training standards for commercial fishermen. What is the status of this recommendation?

Mr. KOLSTAD. There is to date no minimum training standard. However, we understand that the Coast Guard is moving in this direction. I don't know what their time table is.

COMMERCIAL FISHING INDUSTRY SAFETY ACT

Mr. COUGHLIN. Would you summarize for the record the status of the Coast Guard's regulations to implement the Commercial Fishing Industry Safety Act of 1988?

[The information follows:]

The Notice of Proposed Rulemaking (NPRM) has been prepared by the Coast Guard and its Advisory Committee and is now under review by the Department of Transportation. The NPRM must then receive approval by the Office of Management and Budget. It is expected that the draft rule will be available for public comment by early Spring 1990.

"EXXON VALDEZ" INVESTIGATION

Mr. **Coughlin**. What's the status of your investigation of the *Exxon Valdez* accident and have you made any recommendations to date as a result of your investigation?

Mr. **Kolstad**. We haven't made any recommendations yet, but we do expect to produce a report in the next three to four months.

"AMERICAN TRADER" ACCIDENT

Mr. **Coughlin**. To what extent are you participating in the investigation of the *American Trader* accident?

Mr. **Kolstad**. This accident did not meet the Board's criteria for a major marine accident. We found out relatively quickly the circumstances of this accident and it appears that the ship's anchor punctured the hull as it was being withdrawn. We've been in very close touch with the Coast Guard.

This is the kind of accident where if we had adequate resources we would be out there participating in the investigation. But because it didn't meet our strict requirements and because we were in close touch with the Coast Guard on the circumstances in the accident, we didn't send anybody. Obviously, if the situation deteriorated, we would have.

PASSENGER VESSEL SAFETY

Mr. **Coughlin**. You recently completed a safety study of passenger vessels operating from U.S. ports. What's your assessment of the safety of these vessels?

Mr. **Kolstad**. We think that we've been very lucky in not having a catastrophe. We've come very close and we're very concerned over language problems, training problems, equipment problems, fire fighting problems, and because of the growth of this industry, we are continuing to work for better inspections by the Coast Guard.

We believe that the Coast Guard is operating up to the very limit of its statutory authority in conducting these pre-qualification inspections as these ships come to our country. But we have recommended that the Coast Guard seek more statutory authority to conduct a more comprehensive inspection which we think is absolutely necessary before these foreign flag vessels do business in the United States.

PASSENGER VESSEL SAFETY RECOMMENDATIONS

Mr. **Coughlin**. Please provide for the record the three or four most significant recommendations contained in this study.

[The information follows:]

The Safety Board issued a number of major safety recommendations as a result of a comprehensive study issued on passenger vessels operating from U.S. ports. Four of the most significant recommendations issued to the U.S. Coast Guard from this study follow:

Seek legislative authority to require any passenger vessel regularly operating from U.S. ports and embarking U.S. passengers to report to the U.S. Coast Guard any accident in international waters, including but not limited to such accidents as groundings; collisions; loss of main propulsion or steering; or loss resulting in a reduction of maneuvering capabilities; or an occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route, including fire, flooding, or failure or damage to fixed fire extinguishing systems, lifesaving equipment, or auxiliary power generating equipment.

Seek legislative authority to investigate accidents in international waters involving any passenger vessel regularly operating from U.S. ports and embarking U.S. passengers, including but not limited to such accidents as groundings; collisions; loss of main propulsion or steering; or loss resulting in a reduction of maneuvering capabilities; or an occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route, including fire, flooding, or failure or damage to fixed fire-extinguishing systems, lifesaving equipment, or auxiliary power generating equipment.

Seek legislative authority to require that passenger vessels, as a condition for operating from U.S. ports and embarking U.S. passengers, have safety fire protection improvements including but not limited to:

(a) A centralized automatic/manual fire control system on the navigation bridge that integrates the fire detector, automatic fire door controls, the ventilation system controls, and general alarm into a unified system;

(b) Integrated heat and/or smoke detectors with automatic fire door release switches so that the doors will close automatically when the detectors are activated;

(c) A sprinkler system installed in accommodation areas regardless of the method of fireproof construction used;

(d) Hose ports in all fire doors so that these doors may be fully closed when fire hoses have to be led through the doors;

(e) Lined linen fire hoses or equivalent that replace unlined linen fire hoses; and

(f) A crew composition in each passenger vessel department such that at least 75 percent of the crew responsible for emergency, firefighting, and lifesaving service be able to understand and communicate in a common language with the officers and to understand and communicate in English with passengers.

DOUBLE HULLS

Mr. COUGHLIN. Let me yield the chair.

Mr. LEHMAN. Thank you very much, Mr. Coughlin.

Do you support the double hull concept for these tankers?

Mr. KOLSTAD. Mr. Chairman, that's one of the issues that we're looking into at this point. I can't say today that we do or don't. It's a complicated issue and it's not as easy as it might appear just to put a double hull on a ship.

Mr. LEHMAN. Would you specify what complications that you're concerned about?

Mr. KOLSTAD. Well, for example, and I'm certainly no expert and I may reach for one of my staff, but it can increase the tendency for the ship to capsize if one of the hulls is punctured and you start to flood the inner hull.

Mr. LEHMAN. That's the answer I wanted for the record.

Mr. KOLSTAD. Okay.

HAZARDOUS MATERIALS PLACARDING

Mr. LEHMAN. Last year, you indicated that the placarding of hazardous materials was a serious problem. Have there been any improvements in the last year?

Mr. KOLSTAD. There haven't been any recent changes in placarding, but we have seen toxic materials undergoing better requirements for labelling on packages involving bulk shipments.

HAZARDOUS MATERIALS AND PIPELINE SAFETY

Mr. LEHMAN. What is your assessment of RSPA's hazardous materials and pipeline safety programs?

Mr. KOLSTAD. We think that they're understaffed in some areas and let me give you an example. We found that only one individual is assigned to inspect cylinder manufacturing facilities for compliance with DOT safety standards. These are cylinders that carry various forms of gas. This has resulted in thousands of cylinders being put into use that have not passed the DOT inspection requirements.

HM-181 RULEMAKING

Mr. LEHMAN. Has the Department of Transportation completed its hazardous materials rulemaking, HM-181? If not, do you know what has caused the delay?

Mr. KOLSTAD. This is a major rulemaking by RSPA that is going to be carried out in stages and it involves a very complex answer with the acceptance in some stages. If I could, Mr. Chairman, I'd like to provide an answer for the record because it becomes very involved.

[The information follows:]

The Department of Transportation has several projects underway as a part of its efforts to improve its packaging standards and to make them more consistent with the United National (UN) requirements for international shipments of hazardous materials. The classification of anhydrous ammonia has been made a separate issue because of the numerous objections received to the proposal to class it as a poisonous gas as it now is classed in the UN standards. The approximate 2,000 comments to the remaining HM-181 proposals are currently being reviewed by the Research and Special Programs Administration (RSPA) staff, and it is expected that by the Fall of 1990, RSPA's staff will have completed its development of a proposed final rule. Revisions in the requirements for transporting explosives and for the selection of rail tank cars based on the hazard of reclassified materials also are underway. We are told that these proposals may be issued within the next two to three months.

HAZARDOUS MATERIALS RECOMMENDATIONS

Mr. LEHMAN. Please provide for the record your three most significant open recommendations regarding hazardous materials transportation.

[The information follows:]

The three most significant hazardous materials transportation safety recommendations being held in an "open" status are:

R-85-105, addressed to the Research and Special Programs Administration and issued November 13, 1985:

> Require that all tank car shipments of hazardous materials with an isolation radius of one-half mile or more, as recommended by the U.S. Department of Transportation Emergency Response Guidebook, be transported in tank cars equipped with head shield or full tank head protection.

I-88-2, addressed to the Secretary, U.S. Department of Transportation and issued March 14, 1988:

> Strengthen minimum safety requirements for loading and unloading of hazardous materials to provide adequate, uniform safety in all modes of transportation.

I-85-11, addressed to the Research and Special Programs Administration and issued May 16, 1985:

> Revise the hazardous materials regulations to clearly describe shipper responsibilities for performing a sufficient analysis to determine that materials shipped are compatible with the packaging materials to be used in transportation, and that particular emphasis is given to the unique hazards that waste material may present.

CHILD PASSENGER SAFETY

Mr. LEHMAN. There have been questions about child safety in both automobiles and airlines. For automobiles, the issue is whether all of the existing child safety seats provide adequate protection and on airlines, the issue is whether FAA should require child safety seats. What is your position?

Mr. KOLSTAD. We think that child safety seats are very effective. We think that every child 24 months or younger should use them.

Mr. LEHMAN. I think that the issue is whether the presently designed and used seats really provide the safety required. Are the child seats now provided for in automobiles adequately safe?

Mr. KOLSTAD. There is a wide difference, of course, in the quality of child seats on the market. But we think that having some kind of child safety seat is preferable to simply belting a small child in the seat of a car.

Mr. LEHMAN. Well, you know, forty years ago when my children were small, there weren't child safety seats.

There's a timely article in today's Wall Street Journal about the airlines pushing baby safety seats. What bothers me is that petition of the airlines is expected to have a big impact on the FAA. I don't understand why the FAA, who is supposed to regulate the airlines, should be influenced by the airlines themselves, on child safety.

Mr. KOLSTAD. I haven't read the article, no, sir.

Mr. LEHMAN. For the record, would you read the article and then respond as to your assessment of the problem as indicated in this article?

Mr. KOLSTAD. Certainly. I'd be happy to.

[The information follows:]

The crash of United flight 232 in Sioux City, Iowa, and the more recent accident involving Avianca flight 52 in Cove, New York, has focused the attention of the Safety Board on the dangers of allowing child passengers to travel unrestrained. Current FAA regulations allow airlines to permit children under age two to travel as "infants in arms"—the parent buys a seat and holds the child in his or her lap during the flight. The child basically is unrestrained, and there is no way the parent can hold onto the child even in minor crashes. Tests conducted for the FAA by CAMI have demonstrated this conclusively. "Infants in arms" also are at risk of injury during in-flight turbulence and further poses a potential danger to other passengers and flight crew since the child can be thrown around the cabin during turbulence.

As mentioned in the referenced Wall Street Journal article, the Air Transport Association petitioned the FAA on February 22 to require child safety seats for child passengers under 24 months of age. If the FAA does enact such a requirement, the move would have economic impact on air carriers and parents since parents would then have to purchase an airline seat for the child.

Concern for child passenger protection aboard airplanes is not limited to infants—toddlers as well as infants are affected by recent developments. In 1985, in response to Safety Board urging, the Department of Transportation issued a child safety seat standard which incorporated aspects of both air and motor vehicle crashworthiness; before only a few child safety seats were certified for air use by the FAA. Right now, the FAA permits child safety seats which meet FAA approval but allows the carriers to set policy as to whether the seat will be allowed to be used. The Safety Board is aware of instances where the flight crew allowed the child to be seated in the child restraint during the flight but insisted that the child be held during takeoff and landing. The FAA NPRM issued on February 28, 1990, removes the descretion allowed by the earlier order. It states that an airline cannot prohibit the use of a child safety seat should the accompanying adult provide one. The Safety Board is currently reviewing these issues.

SCHOOL BUS DRIVER REQUIREMENTS

Mr. **LEHMAN**. I was reading that about 20 percent of some sample of school bus drivers had police records. Is there any national standards for school bus drivers?

Mr. **KOLSTAD**. They would come under the commercial motor vehicle license program and of course it goes back to what I was addressing about truck safety and the need to do a much more comprehensive job of screening applicants that have the public's safety as part of their responsibility.

Mr. **LEHMAN**. Good school bus drivers are tough to find because of the abnormal working hours. Perhaps, we should address this question to some other agency.

Mr. **KOLSTAD**. Yes, I would certainly think that it would be appropriate to address it to FHWA and maybe get NHTSA's opinion also.

CHILD PASSENGER SAFETY

Mr. **LEHMAN**. Please provide for the record any recent recommendations the Board has made on child safety.

[The information follows:]

During the last year, two significant reports have been adopted by the Safety Board which addressed issues related to the safety of children. On March 28, 1989, the Safety Board adopted the accident report on the Pickup Truck/Church Activity Bus Head-on Collision and Fire near Carrollton, Kentucky on May 14, 1988. This accident report contained 14 safety recommendations addressed to the 50 States and the District of Columbia; to various church associations; to the National Highway Traffic Safety Administration; to the Federal Highway Administration; and to the State of Kentucky specifically. The safety recommendations concerned the issues of schoolbus safety and the role of alcohol in highway safety.

On October 11, 1989, the Safety Board adopted the safety study, "Crashworthiness of Small Poststandard School Buses." This study contained 10 safety recommendations addressed to the National Highway Traffic Safety Administration; to members of the School Bus Manufacturers Institute and manufacturers of van conversion school buses; and to the National Association of State Directors of Pupil Transportation, the National Association of Pupil Transportation, and the National School Transportation Association. These safety recommendations covered various aspects of transportation safety for small school buses.

A computer printout of the safety recommendations issued from these two reports is below.

SAFETY RECOMMENDATIONS H-89-001 THU 014
NTSB SAFETY RECOMMENDATIONS
-- AS OF 3/01/90 --

LOG NUMBER: H-0530

RECOMMENDATION NUMBER: H-89-001
ISSUE DATE: 5/25/89
ADDRESSEE: ALABAMA, GOVERNOR
ADDRESSEE: ALASKA, GOVERNOR
ADDRESSEE: ARIZONA, GOVERNOR
ADDRESSEE: ARKANSAS, GOVERNOR
ADDRESSEE: CALIFORNIA, GOVERNOR
ADDRESSEE: COLORADO, GOVERNOR
ADDRESSEE: CONNECTICUT, GOVERNOR
ADDRESSEE: DELAWARE, GOVERNOR
ADDRESSEE: DISTRICT OF COLUMBIA, MAYOR
ADDRESSEE: FLORIDA, GOVERNOR
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ADDRESSEE: SOUTH DAKOTA, GOVERNOR
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ADDRESSEE: VERMONT, GOVERNOR

ADDRESSEE: VIRGINIA, GOVERNOR
ADDRESSEE: WASHINGTON, GOVERNOR
ADDRESSEE: WEST VIRGINIA, GOVERNOR
ADDRESSEE: WISCONSIN, GOVERNOR
ADDRESSEE: WYOMING, GOVERNOR
STATUS: OPEN - ACCEPTABLE ACTION

ACCIDENT SYNOPSIS:

ABOUT 10:55 P.M. EASTERN DAYLIGHT TIME ON MAY 14, 1988, A PICKUP TRUCK TRAVELING NORTHBOUND IN THE SOUTHBOUND LANES OF INTERSTATE 71 STRUCK HEAD-ON A CHURCH ACTIVITY BUS TRAVELING SOUTHBOUND IN THE LEFT LANE OF THE HIGHWAY NEAR CARROLLTON, KENTUCKY. AS THE PICKUP TRUCK ROTATED DURING IMPACT, IT STRUCK A PASSENGER CAR TRAVELING SOUTHBOUND IN THE RIGHT LANE NEAR THE CHURCH BUS. THE CHURCH BUS FUEL TANK WAS PUNCTURED DURING THE COLLISION SEQUENCE, AND A FIRE ENSUED, ENGULFING THE ENTIRE BUS. THE BUSDRIVER AND 26 BUS PASSENGERS WERE FATALLY INJURED. THIRTY-FOUR BUS PASSENGERS SUSTAINED MINOR TO CRITICAL INJURIES, AND SIX BUS PASSENGERS WERE NOT INJURED. THE PICKUP TRUCK DRIVER SUSTAINED SERIOUS INJURIES, BUT NEITHER OCCUPANT OF THE PASSENGER CAR WAS INJURED.

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE GOVERNORS OF THE 50 STATES AND THE MAYOR OF THE DISTRICT OF COLUMBIA: PROPOSE LEGISLATION ESTABLISHING A DATE BY WHICH SCHOOL BUSES MANUFACTURED BEFORE APRIL 1977 WILL BE PHASED OUT OF USE FOR TRANSPORTATION OF PASSENGERS.

LOG NUMBER: H-0530A

RECOMMENDATION NUMBER: H-89-002
ISSUE DATE: 7/20/89
ADDRESSEE: ALABAMA, GOVERNOR
ADDRESSEE: GEORGIA, GOVERNOR
ADDRESSEE: HAWAII, GOVERNOR
ADDRESSEE: MASSACHUSETTS, GOVERNOR
ADDRESSEE: MONTANA, GOVERNOR
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ADDRESSEE: SOUTH CAROLINA, GOVERNOR
ADDRESSEE: SOUTH DAKOTA, GOVERNOR
ADDRESSEE: TENNESSEE, GOVERNOR

SAFETY RECOMMENDATIONS H-89-001 THU 014
NTSB SAFETY RECOMMENDATIONS
-- AS OF 3/01/90 --

ADDRESSEE: UTAH, GOVERNOR
ADDRESSEE: VERMONT, GOVERNOR
ADDRESSEE: DISTRICT OF COLUMBIA, MAYOR
ADDRESSEE: ILLINOIS, GOVERNOR
ADDRESSEE: LOUISIANA, GOVERNOR
ADDRESSEE: NEW MEXICO, GOVERNOR
ADDRESSEE: NORTH DAKOTA, GOVERNOR
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ADDRESSEE: NORTH CAROLINA, GOVERNOR
ADDRESSEE: OREGON, GOVERNOR
ADDRESSEE: IOWA, GOVERNOR
ADDRESSEE: KENTUCKY, GOVERNOR
STATUS: OPEN - ACCEPTABLE ACTION

ACCIDENT SYNOPSIS:

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RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT ALL THE STATES EXCEPT KENTUCKY AND THE DISTRICT OF COLUMBIA: CONVENE OR RECONVENE A COMMITTEE OR TASK FORCE TO REVIEW YOUR STATE'S DRIVING-UNDER-THE-INFLUENCE (DUI) LEGISLATION AND ITS IMPLEMENTATION, IN LIGHT OF THE PROBLEMS DISCUSSED IN THE ACCIDENT REPORT ON THE PICKUP TRUCK/CHURCH ACTIVITY BUS HEAD-ON COLLISION AND FIRE NEAR CARROLLTON, KENTUCKY, ON MAY 14, 1988. PARTICULAR ATTENTION SHOULD BE PAID TO IMPLEMENTATION OF ADMINISTRATIVE LICENSE REVOCATION PROGRAMS, IMPROVED EVALUATIONS OF CONVICTED DUI OFFENDERS, AND ENHANCED PUBLIC AWARENESS AND ENFORCEMENT PROGRAMS. BASED ON THIS REVIEW, TAKE APPROPRIATE ACTION TO IMPROVE YOUR STATE'S DUI PREVENTION PROGRAM.

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                    SAFETY RECOMMENDATIONS H-89-001 THU 014
                              NTSB SAFETY RECOMMENDATIONS
                                -- AS OF  3/01/90 --


                                           RECOMMENDATION NUMBER:  H-89-003
LOG NUMBER:  H-0530B                       ISSUE DATE:   5/25/89
                                           ADDRESSEE:   CHRISTIAN CENTURY, CHICAGO, IL
                                           ADDRESSEE:   EVANGELICAL NEWSLETTER, PHILADELPHIA, PA
                                           ADDRESSEE:   ETERNITY, PHILADELPHIA, PA
                                           ADDRESSEE:   GROUP, LOVELAND, CO
                                           ADDRESSEE:   LEADERSHIP, CAROL STREAM, IL
                                           ADDRESSEE:   MOODY MONTHLY, CHICAGO, IL
                                           ADDRESSEE:   THE PRESBYTERIAN JOURNAL, ASHVILLE, NC
                                           ADDRESSEE:   THE PRESBYTERIAN OUTLOOK, RICHMOND, VA
                                           ADDRESSEE:   INNOVATIONS FOR THE CHURCH LEADER, ELGIN, IL
                                           ADDRESSEE:   PRESBYTERIAN SURVEY, ATLANTA, GA
                                           ADDRESSEE:   YOUTH SPECIALTIES, INC., EL CAJON, CA
                                           ADDRESSEE:   BAPTIST JOINT COMMITTEE ON PUBLIC AFFAIRS, DC
                                           ADDRESSEE:   SOUTHERN BAPTIST PRESS ASSOCIATION, NASHVILLE, TN
                                           ADDRESSEE:   ASSOCIATION OF REGIONAL RELIGIOUS COMM., CINCINNA
                                           ADDRESSEE:   NAT'L COUNCIL OF CHURCHES OF CHRIST IN THE USA, N
                                           ADDRESSEE:   NATIONAL RELIGIOUS BROADCASTERS, MORRISTOWN, NJ
                                           ADDRESSEE:   ASSN. OF CATHOLIC TV & RADIO SYNDICATORS, CHICAGO
                                           ADDRESSEE:   ASSOCIATED CHURCH PRESS, GENEVA, IL
                                           ADDRESSEE:   INTERNATIONAL MEDIA SERVICE, WASHINGTON, DC
                                           ADDRESSEE:   AMERICAN BAPTIST CHURCHES, USA, WASHINGTON, DC
                                           ADDRESSEE:   THE AMERICAN ETHICAL UNION, CHEVY CHASE, MD
                                           ADDRESSEE:   AMERICAN FRIENDS SERVICE COMMITTEE, WASHINGTON, D
                                           ADDRESSEE:   AMERICAN JEWISH COMMITTEE, WASHINGTON, DC
                                           ADDRESSEE:   AMERICAN JEWISH CONGRESS, WASHINGTON, DC
                                           ADDRESSEE:   BAPTIST WORLD ALLIANCE, WASHINGTON, DC
                                           ADDRESSEE:   B'NAI B'RITH INT'L, WASHINGTON, DC
                                           ADDRESSEE:   BREAD FOR THE WORLD, WASHINGTON, DC
                                           ADDRESSEE:   CATHOLIC INFORMATION CENTER, WASHINGTON, DC
                                           ADDRESSEE:   CENTER FOR THEOLOGY AND PUBLIC POLICY, WASHINGTON
                                           ADDRESSEE:   CHRISTIAN SCIENCE COMMITTEE ON PUBLICATION, WASHI
                                           ADDRESSEE:   CHRISTIC INSTITUTE, WASHINGTON, DC
                                           ADDRESSEE:   CHURCH OF THE BRETHREN, WASHINGTON, DC
                                           ADDRESSEE:   CLERGY AND LAITY CONCERNED, WASHINGTON, DC
                                           ADDRESSEE:   EPISCOPAL CHURCH, WASHINGTON, DC
                                           ADDRESSEE:   FRIENDS COMMITTEE ON NAT'L LEGISLATION, WASHINGTO
                                           ADDRESSEE:   GENERAL CONFERENCE OF 7TH-DAY ADVENTISTS, WASHING
                                           ADDRESSEE:   IMPACT, WASHINGTON, DC
                                           ADDRESSEE:   LUTHERAN COUNCIL IN THE USA, WASHINGTON, DC
                                           ADDRESSEE:   MARYKNOLL FATHERS AND BROTHERS, WASHINGTON, DC
                                           ADDRESSEE:   MENNONITE CENTRAL COMMITTEE, WASHINGTON, DC
                                           ADDRESSEE:   NAT'L ASSEMBLY OF WOMEN RELIGIOUS, WASHINGTON, DC
                                           ADDRESSEE:   NAT'L OFFICE OF JESUIT SOCIAL MINISTRIES, WASHING
                                           ADDRESSEE:   NAT'L ASSOCIATION OF EVANGELICALS, WASHINGTON, DC
                                           ADDRESSEE:   NETWORK, WASHINGTON, DC
                                           ADDRESSEE:   NAT'L CONFERENCE OF CATHOLIC BISHOPS, WASHINGTON,
                                           ADDRESSEE:   PRESBYTERIAN CHURCH IN THE USA, WASHINGTON, DC
                                           ADDRESSEE:   NAT'L CONFERENCE OF CATHOLIC CHARITIES, WASHINGTO
                                           ADDRESSEE:   NAT'L CONFERENCE OF CATHOLIC WOMEN, WASHINGTON, D
                                           ADDRESSEE:   UNITARIAN UNIVERSALIST ASSN., WASHINGTON, DC
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ACCIDENT SYNOPSIS:

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ADDRESSEE: NAT'L CONFERENCE OF CHRISTIANS & JEWS, WASHINGTON
ADDRESSEE: UNITED CHURCH OF CHRIST, WASHINGTON, DC
ADDRESSEE: NAT'L CONFERENCE OF SOVIET JEWRY, WASHINGTON, DC
ADDRESSEE: NAT'L COUNCIL OF CHURCHES, WASHINGTON, DC
ADDRESSEE: UNITED METHODIST CHURCH BOARD OF CHURCH & SOCIETY
ADDRESSEE: NAT'L OFFICE OF BLACK CATHOLICS, WASHINGTON, DC
ADDRESSEE: UNITED STATES CATHOLIC CONFERENCE, WASHINGTON, DC
ADDRESSEE: UNION OF HEBREW CONGREGATION, WASHINGTON, DC
ADDRESSEE: LUTHERAN COUNCIL OF AMERICA, WASHINGTON, DC
ADDRESSEE: BOY SCOUTS OF AMERICA, BETHESDA, MD
ADDRESSEE: GIRL SCOUTS OF THE USA, NEW YORK, NY
ADDRESSEE: CAMP FIRE GIRLS & BOYS, KANSAS CITY, MO
ADDRESSEE: LUTHERAN RESOURCES COMMISSION
ADDRESSEE: NATIONAL COUNCIL OF JEWISH WOMEN, WASHINGTON, DC
ADDRESSEE: CHRISTIAN LIFE, WHEATON, IL
ADDRESSEE: ETERNITY, WHEATON, IL
STATUS: OPEN - INITIAL RESPONSE RECEIVED

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THEVARIOUS CHURCH ASSOCIATIONS AND OTHER SPECIAL ACTIVITY GROUPS: PURCHASE ONLY SCHOOL BUS-TYPE VEHICLES WHICH MEET THE FEDERAL MOTOR VEHICLE SAFETY STANDARDS SET FOR SCHOOL BUSES IN APRIL 1977.

LOG NUMBER: H-0530C

ACCIDENT SYNOPSIS:

ABOUT 10:55 P.M. EASTERN DAYLIGHT TIME ON MAY 14, 1988, A PICKUP TRUCK TRAVELING NORTHBOUND IN THE SOUTHBOUND LANES OF INTERSTATE 71 STRUCK HEAD-ON A CHURCH ACTIVITY BUS TRAVELING SOUTHBOUND IN THE LEFT LANE OF THE HIGHWAY NEAR CARROLLTON, KENTUCKY. AS THE PICKUP TRUCK ROTATED DURING IMPACT, IT STRUCK A PASSENGER CAR TRAVELING SOUTHBOUND IN THE RIGHT LANE NEAR THE CHURCH BUS. THE CHURCH BUS FUEL TANK WAS

RECOMMENDATION NUMBER: H-89-004
ISSUE DATE: 6/05/89
ADDRESSEE: NHTSA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION: INCORPORATE IN FEDERAL MOTOR VEHICLE SAFETY STANDARD 302 THE RECOMMENDATIONS OF THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY CONCERNING THE NEW MATERIAL ACCEPTANCE CRITERIA TO REDUCE THE RATE OF FIRE SPREAD IN ALL BUSES.

PUNCTURED DURING THE COLLISION SEQUENCE, AND A FIRE ENSUED, ENGULFING THE ENTIRE BUS. THE BUSDRIVER AND 26 BUS PASSENGERS WERE FATALLY INJURED. THIRTY-FOUR BUS PASSENGERS SUSTAINED MINOR TO CRITICAL INJURIES, AND SIX BUS PASSENGERS WERE NOT INJURED. THE PICKUP TRUCK DRIVER SUSTAINED SERIOUS INJURIES, BUT NEITHER OCCUPANT OF THE PASSENGER CAR WAS INJURED.

RECOMMENDATION NUMBER: H-89-005
ISSUE DATE: 6/05/89
ADDRESSEE: NHTSA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION: REVISE FEDERAL MOTOR VEHICLE SAFETY STANDARD 217 TO REQUIRE THAT SCHOOL BUS EGRESS BE BASED ON VEHICLE OCCUPANT CAPACITY AND BE NO LOWER THAN THOSE CURRENTLY REQUIRED FOR NONSCHOOL BUSES.

RECOMMENDATION NUMBER: H-89-006
ISSUE DATE: 6/05/89
ADDRESSEE: NHTSA
STATUS: OPEN - ACCEPTABLE ACTION

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE NATIONAL HIGHWAY TRAFFIC SAETY ADMINISTRATION: REVISE FEDERAL MOTOR VEHICLE SAFETY STANDARD 301 TO PROVIDE ADDITIONAL PROTECTION FOR SCHOOL BUSES IN SEVERE CRASH SITUATIONS BASED ON AN EVALUATION OF THE MERITS OF RELOCATING FUEL TANKS, PROVIDING ADDITIONAL STRUCTURE TO PROTECT FUEL SYSTEM COMPONENTS, AND FRANGIBLE VALVES IN CRITICAL LOCATIONS.

LOG NUMBER: H-0530D

ACCIDENT SYNOPSIS:

ABOUT 10:55 P.M. EASTERN DAYLIGHT TIME ON MAY 14, 1988, A PICKUP TRUCK TRAVELING NORTHBOUND IN THE SOUTHBOUND LANES OF INTERSTATE 71 STRUCK HEAD-ON A CHURCH ACTIVITY BUS TRAVELING SOUTHBOUND IN THE LEFT LANE OF THE HIGHWAY NEAR CARROLLTON, KENTUCKY. AS THE PICKUP TRUCK ROTATED DURING IMPACT, IT STRUCK A PASSENGER CAR TRAVELING SOUTHBOUND IN THE RIGHT LANE NEAR THE CHURCH BUS. THE CHURCH BUS FUEL TANK WAS PUNCTURED DURING THE COLLISION SEQUENCE, AND A FIRE ENSUED, ENGULFING THE ENTIRE BUS. THE BUSDRIVER AND 26 BUS PASSENGERS WERE FATALLY INJURED. THIRTY-FOUR BUS PASSENGERS SUSTAINED MINOR TO CRITICAL INJURIES, AND SIX BUS PASSENGERS WERE NOT INJURED. THE PICKUP TRUCK DRIVER SUSTAINED SERIOUS INJURIES, BUT NEITHER OCCUPANT OF THE PASSENGER CAR WAS INJURED.

RECOMMENDATION NUMBER: H-89-007
ISSUE DATE: 6/05/89
ADDRESSEE: FHWA
STATUS: CLOSED - RECONSIDERED

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE FEDERAL HIGHWAY ADMINISTRATION: CONDUCT A DEMONSTRATION PROJECT TO DETERMINE THE EFFECTIVENESS OF INSTALLING ADDITIONAL SIGNS AND MARKINGS AT ALL CROSSOVERS AND PERIODIC INTERVALS TO REDUCE WRONG-WAY ACCIDENTS ON INTERSTATES.

LOG NUMBER: H-0530E

ACCIDENT SYNOPSIS:

ABOUT 10:55 P.M. EASTERN DAYLIGHT TIME ON MAY 14, 1988, A PICKUP TRUCK TRAVELING NORTHBOUND IN THE SOUTHBOUND LANES OF INTERSTATE 71 STRUCK HEAD-ON A CHURCH ACTIVITY BUS TRAVELING SOUTHBOUND IN THE LEFT LANE OF THE HIGHWAY NEAR CARROLLTON, KENTUCKY. THE CHURCH BUS FUEL TANK WAS PUNCTURED DURING THE COLLISION SEQUENCE, AND A FIRE ENSUED, ENGULFING THE ENTIRE BUS. THE BUSDRIVER AND 26 BUS PASSENGERS WERE FATALLY INJURED. THIRTY-FOUR BUS PASSENGERS SURVIVED WITH MINOR TO CRITICAL INJURIES, AND SIX WITH NO INJURIES. THE PICKUP TRUCK DRIVER SUSTAINED SERIOUS INJURIES.

RECOMMENDATION NUMBER: H-89-008
ISSUE DATE: 7/20/89
ADDRESSEE: KENTUCKY, GOVERNOR
STATUS: OPEN - AWAIT REPLY

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE STATE OF KENTUCKY: ENACT THE RECOMMENDATIONS MADE BY THE DRIVING-UNDER-THE-INFLUENCE (DUI) COMMITTEE FORMED BY THE GOVERNOR TO ASSESS THE CURRENT DUI LAWS. THESE RECOMMENDATIONS COVER ADMINISTRATIVE LICENSE REVOCATION, ILLEGAL PER SE, IMPLIED CONSENT AND TESTING, CHEMICAL ANALYSIS, SUSPENDED LICENSES, AND ALCOHOL DRIVER EDUCATION.

RECOMMENDATION NUMBER: H-89-009
ISSUE DATE: 7/20/89
ADDRESSEE: KENTUCKY, GOVERNOR
STATUS: OPEN - AWAIT REPLY

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE STATE OF KENTUCKY: AMEND THE CURRENT DRIVING-UNDER-THE-INFLUENCE LAWS TO PROHIBIT THE REDUCTION OR ELIMINATION OF A LICENSING PENALTY IF A CONVICTED OFFENDER ENROLLS IN AN EDUCATION OR TREATMENT PROGRAM. PARTICIPATION IN THESE PROGRAMS SHOULD BE REQUIRED IN ADDITION TO APPROPRIATE LICENSING OR OTHER PENALTIES.

RECOMMENDATION NUMBER: H-89-010
ISSUE DATE: 7/20/89
ADDRESSEE: KENTUCKY, GOVERNOR
STATUS: OPEN - AWAIT REPLY

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE STATE OF KENTUCKY: REVIEW ALL ASPECTS OF THE PLEA BARGAINING PROHIBITIONS OF THE 1984 DRIVING-UNDER-THE-INFLUENCE LAW TO DETERMINE IF PERSONS CHARGED WITH ALCOHOL-RELATED OFFENSES ARE BEING ALLOWED TO PLEA BARGAIN THE CHARGE TO A NONALCOHOL-RELATED OFFENSE, AND IF SO, TAKE ADMINISTRATIVE OR LEGISLATIVE ACTION TO CORRECT THE SITUATION.

RECOMMENDATION NUMBER: H-89-012
ISSUE DATE: 7/20/89
ADDRESSEE: KENTUCKY, GOVERNOR
STATUS: OPEN - AWAIT REPLY

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE STATE OF KENTUCKY: EXPAND THE USE OF SOBRIETY CHECKPOINTS BY THE KENTUCKY STATE POLICE, AND ENCOURAGE AND ASSIST LOCAL LAW ENFORCEMENT AGENCIES TO DO THE SAME.

RECOMMENDATION NUMBER: H-89-013
ISSUE DATE: 7/20/89
ADDRESSEE: KENTUCKY, GOVERNOR
STATUS: OPEN - AWAIT REPLY

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE STATE OF KENTUCKY: RENEW STATE EFFORTS TO PUBLICIZE AND ENCOURAGE CITIZENS TO PARTICIPATE IN THE 'REPORT A PROBLEM INTOXICATED DRIVER' PROGRAM.

RECOMMENDATION NUMBER: H-89-014
ISSUE DATE: 7/20/89
ADDRESSEE: KENTUCKY, GOVERNOR
STATUS: OPEN - AWAIT REPLY

RECOMMENDATION SUBJECT:

THE NTSB RECOMMENDS THAT THE STATE OF KENTUCKY: EXPAND EFFORTS TO MAKE THE PUBLIC AWARE OF INCREASED EMPHASIS ON DETERRING IMPAIRED DRIVING.

--to the National Highway Traffic Safety Administration:

Determine the feasibility of requiring lap/shoulder belts or other restraint systems that provide upper torso restraint at front seat passenger seating positions on Type A school buses (gross vehicle weight rating of 10,000 pounds or less). Amend Federal Motor Vehicle Safety Standard (FMVSS) 222, "School Bus Passenger Seating and Crash Protection," and FMVSS 210, "Seat Belt Assembly Anchorages," or any other standards, as needed, should standards prove incompatible. (Class II, Priority Action) (H-89-46)

Conduct research, including computer simulation and sled crash tests using Hybrid III dummies if needed, to determine the relationship between restraining barrier design and injuries to unrestrained and lapbelted passengers of different sizes on small school buses (gross vehicle weight rating of 10,000 pounds or less). Research should focus on the height, width, padding, location, and anchorage strength of the barrier, and the spacing between the barrier and front seats. Amend Federal Motor Vehicle Safety Standard 222, "School Bus Passenger Seating and Crash Protection," as needed. (Class II, Priority Action) (H-89-47)

Amend Federal Motor Vehicle Safety Standard 217, "Bus Window Retention and Release," to include a performance standard for the minimum retention of windshields in all sizes of school buses. (Class II, Priority Action) (H-89-48)

Collect and evaluate accident data on the crash performance of the roof and emergency exits on small school buses (gross vehicle weight rating of 10,000 pounds or less) in rollovers. Data should not be limited to van-based buses. Based on analysis, ascertain whether it is appropriate to amend Federal Motor Vehicle Safety Standard 220, "School Bus Rollover Protection," to make roof performance tests for small school buses (gross vehicle weight of 10,000 pounds or less) to be identical in all aspects to those now required of large school buses (gross vehicle weight rating of more than 10,000 pounds). If such tests are not appropriate, modify the test for small school buses to stress the roof more than the present force application plate test does. (Class II, Priority Action) (H-89-49)

Collect and evaluate accident data involving small school buses to ascertain whether school buses with a gross vehicle weight rating of 10,000 pounds or less should be required to meet joint strength requirements of Federal Motor Vehicle Safety Standard 221, "School Bus Body Joint Strength." (Class II, Priority Action) (H-89-50)

Specify in new rulemaking or in an amendment to Federal Motor Vehicle Safety Standard 206, "Door Locks and Door Retention Components," a requirement for a positive latch locking mechanism on the passenger loading doors of small school buses (gross vehicle weight rating of 10,000 pounds or less) to eliminate the possibility of inadvertent door opening during a frontal crash or rollover. Work with school bus and school van manufacturers to develop the performance standards. (Class II, Priority Action) (H-89-51)

Urge manufacturers to provide means to retrofit positive latch locking mechanisms on existing door controls of small school buses (gross vehicle weight rating of 10,000 pounds or less). (Class II, Priority Action) (H-89-52)

--to members of the School Bus Manufacturers Institute and manufacturers of van conversion school buses:

Work with National Highway Traffic Safety Administration to develop performance standards for a locking mechanism for the boarding doors of school buses with a gross vehicle weight rating of 10,000 pounds or less to eliminate the possibility of inadvertent door opening during frontal or rollover crash. (Class II, Priority Action) (H-89-53)

Provide retrofit kits for small school buses (gross vehicle weight rating of 10,000 pounds or less) currently without positive latch door control locking mechanisms. (Class II, Priority Action) (H-89-54)

--to the National Association of State Directors of Pupil Transportation, the National Association of Pupil Transportation, and the National School Transportation Association:

Alert your members to the dangers inherent in improper installation of seatbelts and/or installation of restraint systems not meeting Federal standards or guidelines in school buses and urge them to correct such installations. Also alert your members of the need to instruct students to wear lapbelts properly. (Class II, Priority Action) (H-89-55)

NORTHUMBERLAND MARINE ACCIDENT

Mr. **Lehman**. Mr. Coughlin?

Mr. **Coughlin**. Thank you, Mr. Chairman. I just had one other general question before we go on to justifications.

The Department of Transportation staff members told the NTSB, as I understand it, with regard to the striking of an exposed natural gas pipeline by that boat in Northumberland, that strengthening guidelines governing the depth of submerged pipelines would be too costly, but that less expensive buoys and navigational charts could help.

What's the policy of the NTSB on the give and take between cost and efficiency of safety suggestions generally?

Mr. **Kolstad**. As a matter of practice, we don't consider cost specifically. I think that we need to be realistic in the recommendations that we make. I think it does no good at all to issue recommendations strictly for their dramatic effect if they can't possibly be implemented.

I think it takes knowledge of what the problem is, and I think it also takes some concept of whether or not this is going to be a recommendation that stands any chance of being closed out. And with that in mind, I think that we have to think about what kind of cost implications are involved.

With respect to Northumberland, we had a situation there where a ship hit a submerged pipeline that shouldn't have been there. It didn't show up on any map, any chart. That fishing boat captain believed that he was as safe as he could be in those waters.

In looking into it, we found other situations in that area in which we have pipelines and we have fishing vessels that are there. We're very concerned about the possibility of other accidents in that area because of the lack of knowledge by the fishing boat captains of the existence of the pipelines that are supposed to be submerged not only under water, but under six feet of overburden and over the years have become exposed. That's apparently what happened to this particular pipeline, that the tidal currents have exposed it to damage by fishing vessels.

Mr. **Coughlin**. So these are not charted at all?

Mr. **Kolstad**. There are some that are. We found that there were a few pipelines in that area that were on charts, but there are many others that are not.

Mr. **Coughlin**. Thank you, Mr. Chairman.

Mr. **Lehman**. Thank you, Mr. Coughlin. We will recess and, without objection, return at 2:00.

JUSTIFICATIONS—NTSB REAUTHORIZATION

Mr. **Lehman**. You indicate that your fiscal year 1991 appropriations request requires authorizing legislation. What is the status?

Mr. **Kolstad**. Mr. Chairman, hearings haven't been scheduled yet, but we expect them to be early in the summer.

Mr. **Lehman**. And that would be with the Public Works Committee.

Mr. **Kolstad**. Correct.

Mr. **Lehman**. Have you submitted legislation yet?

Mr. **Kolstad**. It's in preparation right now.

Mr. **Lehman**. When do you expect to have it up on the Hill?

Mr. **Kolstad**. A month.

NTSB TRAVEL INCREASE

Mr. **Lehman**. On page 3, you are proposing a 13 percent increase in travel. What is the reason?

Mr. **Kolstad**. I'm going to let Mr. Miller handle that one, if I may.

Mr. **Miller**. We are proposing an increase in staff, of course, Mr. Chairman, and $100,000 of that increase would be for the increased travel costs for those additional staff members. Another $60,000 is for inflation and finally about $30,000 is for the travel in connection with the increased training that we are also asking for.

GSA RENTAL PAYMENTS

Mr. **Lehman**. You are also requesting an 11 percent increase in rental payments to GSA. Would you have GSA provide the rationale for this requested increase?

[The information follows:]

The 11 percent increase requested for rental payments to GSA is necessary to cover the additional space required for the additional staff and inflation.

OTHER SERVICES

Mr. **Lehman**. You also show an increase of $375,000 for "other services." This is substantially above the four percent assumed for inflation. What is the reason?

Mr. **Miller**. Again, a similar reason: $140,000 of that is for our increased staff services to support the additional 22 positions, about $50,000 is the training increase that I mentioned a little earlier in your earlier question, about $90,000 is inflation, and of course we have the drug testing and physical examination program, the hepatitis-B program for our investigators that would be included in that total other services category.

Mr. **Lehman**. Would you provide for the record a breakdown of your $2,234,000 request for "other services" and indicate how it compares with fiscal years 1989 and 1990?

[The information follows:]

OTHER SERVICES

[In fiscal years and thousands of dollars]

Object class description	1989 actual	Difference	1990 estimate	Difference	1991 estimate
Accident investigation	327	16	343	38	381
ADP	332	26	358	61	419
Training tuition/fees	237	12	249	[1] 77	326
Working capital fund	269	13	282	31	313
Building and equipment maintenance	152	8	160	18	178
Court reporting	160	8	168	18	186
Miscellaneous [2]	323	16	339	[3] 92	431
Total other services	1,800	99	1,899	335	2,234

[1] Includes $49K to enhance technical and professional training.

[2] Includes other nongovernment services such as courier, drapery/carpet cleaning and counseling services, and other government services such as payroll and medical services.

[3] Includes $25K for physical examinations/drug testing and $30K for hepatitis shots.

ACCIDENT REPORT TIMELINESS

Mr. **Lehman.** Please update for the record the table summarizing the timeframe required to issue your accident reports found on page 131 of last year's hearing record.

[The information follows:]

TIMELINESS OF ACCIDENT REPORTS—TIME BETWEEN OCCURRENCE AND THE ADOPTION OF REPORTS

Fiscal year	FTE	Average elapsed time											
		Aviation		Railroad		Highway		Marine		Haz mat/pipe		Total	
		Reports	Months	Reports	Months	Reports	Months	Reports	Months	Reports	Months	Reports	Months
Majors:													
1979	378	19	6.9	13	6.2	8	10.8	19	14.4	4	6.5	63	9.5
1980	380	13	8.8	11	5.8	6	5.6	18	12.9	7	7.2	55	9.0
1981	365	16	8.6	12	5.5	8	5.9	12	8.3	5	10.4	53	7.6
1982	306	14	11.4	8	7.5	7	7.9	8	10.5	3	6.6	40	9.5
1983	308	10	9.2	10	8.4	5	7.5	9	12.5	3	7.3	37	9.4
1984	331	13	11.7	6	7.4	7	9.1	9	10.1	5	10.2	40	10.1
1985	336	10	10.8	11	14.0	6	8.3	12	11.6	6	13.7	45	11.8
1986	323	6	11.2	6	14.5	5	8.6	14	12.0	5	14.2	36	12.1
1987	324	8	10.8	6	14.8	6	13.9	8	10.3	6	15.2	34	12.7
1988	324	9	12.0	4	11.9	5	10.3	10	11.7	1	11.7	29	11.6
1989	324	8	14.1	5	11.1	5	10.7	8	10.4	1	9.1	27	11.6
Estimate 1990 [1]	326	9	14.0	5	11.0	5	10.6	8	10.3	1	9.0	28	11.6
Estimate 1991 [1]	348	11	13.1	6	10.3	6	9.9	8	9.6	1	8.4	32	11.0
Average	336	11	10.1	8	9.0	6	8.9	12	11.7	4	10.6	42	10.2

[1] Fiscal year 90/91 estimates for reports adopted with the fiscal year 1991 OMB Budget. Estimates for average elapsed time are based on the percent change in staff since the previous year.

In general, between 1979 and 1981, the trend was toward a reduction in the time between major accident occurrence and issuance of the accident report. The reversal of that downward trend in fiscal year 1982 and subsequent years is attributable primarily to the reduction in staff sustained in fiscal year 1982.

SUMMARY OF THE AVERAGE ELAPSED TIME BETWEEN THE OCCURRENCE OF FIELD ACCIDENTS AND THE ADOPTION OF ACCIDENT REPORTS

Calendar year	Average elasped timed (in months)		
	Aviation	Railroad	Highway
1985:			
Factual reports	8.7	7.6	5.1
Briefs of accident	12.2	8.2	8.0
1986:			
Factual reports	6.6	7.0	5.0
Briefs of accident	12.4	14.0	8.0
1987:			
Factual reports	6.5	7.0	5.0
Briefs of accident	12.8	16.0	18.0
1988:			
Factual reports	7.3	6.5	3.0
Briefs of accident	14.0	14.0	18.0
1989:			
Factual reports	[1] 8.8	7.1	3.0
Briefs of accident	17.0	[2] 15.4	[3] 18.0

[1] The increase resulted from the reduction in numbers of authorized air safety investigators.

[2] The increase resulted from holding reports for inputting into new data system.

[3] Most of the briefs of accidents are associated with special studies and must be Board approved after the study is written.

CIVILIAN BENEFIT COSTS

Mr. **LEHMAN**. On page 5, would you provide for the record a detailed breakdown of how you determined your $244,000 requested increase for civilian benefit costs?

[The information follows:]

The $244,000 will cover an expected 8.1 percent increase in civilian benefits costs. Specifically, health benefit premiums are expected to increase approximately 25 percent in FY 1991 based on FY 1988 and FY 1989 increases of 31 percent and 24 percent, respectively. In addition, higher retirement contributions are expected due to increased numbers of employees being covered by the more expensive Federal Employees Retirement System (FERS). FERS costs are 12.9 percent of salaries plus up to 5 percent for Thrift Savings; whereas the old Civil Service Retirement System cost only 7 percent of salaries.

TRAINING COSTS

Mr. **LEHMAN**. You are requesting a $81,000 increase in training. What is the fiscal year 1990 base for your training costs and in what new areas will your employees be trained?

Mr. **MILLER**. The fiscal year 1990 basis is $402,000 for training. Some of the areas, of course, that we're going to be requesting training or undertaking training for would be with the manufacturers. For example, the A-320, our people need to get some additional training and orientation in that area. Industry orientation for our people to spend a couple of weeks with the industries that they are in fact investigating accidents for, and we've inaugurated an advanced concepts seminar at our Oklahoma City school, which will be offering short courses on human performance, composite materials, fire and explosion and similar programs.

NTSB DRUG TESTING

Mr. **LEHMAN**. On page 6, you are requesting a $10,000 increase for drug testing. Are you currently testing your employees for drugs? If so, what kind of testing do you conduct and what have been the results to date? And if not, what will your testing program involve?

Mr. **KOLSTAD**. Mr. Chairman, we are not currently testing our employees. Our testing program has not yet been approved. We would propose that it include alcohol and drugs, that it be part of a medical exam, and that the testing include our investigators, our technical specialists and our Board Members.

Mr. **LEHMAN**. Do your employees do the actual testing post-accident today?

Mr. **KOLSTAD**. Today?

Mr. **LEHMAN**. Do you do the actual testing?

Mr. **KOLSTAD**. No, sir. That's done usually by the employer.

HEPATITIS VACCINE

Mr. **LEHMAN**. You are requesting $30,000 to vaccinate 215 people for hepatitis. Has hepatitis been a problem or is it just a potential problem, and how did you arrive at your estimated cost of $140 per vaccination?

[The information follows:]

Although there has not been a problem with hepatitis, there is a potential problem due to exposure at accident sites. the $140 figure was provided by the U.S. Public Health Service.

SOFTWARE CONVERSION COSTS

Mr. LEHMAN. On page 7, you are requesting an increase of $250,000 for software conversion costs associated with the purchase of a mainframe computer. What is the status of your mainframe procurement?

Mr. MILLER. We have not undertaken a procurement action, Mr. Chairman. We have requested about $800,000 of the OMB for this project so that the $250,000 is really sort of a down payment which will be used to initiate the conversion effort on the mainframe.

Mr. LEHMAN. Could you estimate the total cost over a period of years?

Mr. MILLER. The total that we were estimating is about $800,000.

ACCIDENT REPORT TIMELINESS

Mr. LEHMAN. On page 9, in discussing your requested staff increase, you state that "there is a serious degradation in the timeliness of our reports when investigators regularly are forced to stop working on one accident to begin another". However, last year you stated that you did not believe the increased time to issue your reports was affecting transportation safety. If it is, what's the reason for the change?

Mr. KOLSTAD. We don't think that it's affecting transportation safety in terms of not being able to uncover needed changes, because we're responding to every accident.

However, we think we can improve transportation safety by improving on the timeliness of our reports.

Mr. LEHMAN. How much improvement? What's the timeframe?

Mr. KOLSTAD. It's now currently taking between twelve and thirteen months and I'd like to if possible get that down to around nine to ten months.

INVESTIGATORS-IN-CHARGE

Mr. LEHMAN. You're requesting nine senior investigators. How many senior investigators do you currently have for each mode?

Mr. MILLER. We have six in aviation, four in rail and highway, each, and two in pipeline, three in hazardous materials, and eight in marine.

Mr. LEHMAN. If your staffing increases were to be approved, how many additional detailed on-site aviation accident investigations would you conduct?

Mr. MILLER. We estimate that we would be able to conduct about two major aviation accidents additionally, about 32 field investigations which would be one investigator kind of investigations and about 206 additional limited investigations.

Mr. LEHMAN. Well, the less you work the better off we are.

Mr. COUGHLIN. Mr. Chairman?

Mr. LEHMAN. Mr. Coughlin.

Mr. COUGHLIN. You said you have six senior investigators in aviation and eight in marine?

Mr. MILLER. No, sir, six. Six in aviation and eight in marine.

Mr. COUGHLIN. Eight in marine.

Mr. MILLER. Yes. Marine is a somewhat unusual category in that we really don't have the smaller investigations. Because of our special arrangement with the Coast Guard, we only investigate what are called major marine casualties and therefore while we don't—let's see—how can I describe this?

While we don't launch full go teams in the marine area as frequently as we do in aviation, we nevertheless send one-man investigative teams to either participate in the Coast Guard investigations or to conduct independent one-man investigations.

So the marine category is really not—when I say major investigators in charge, they really don't investigate as many catastrophic type investigations. It's kind of comparing apples and oranges.

That's our entire marine staff, for example, as opposed to the aviation staff, which of course we have field investigators.

Mr. COUGHLIN. You do more rail and highway investigations than you do marine. I'm just interested—it seems like an anomaly.

MARINE INVESTIGATIONS

Mr. KOLSTAD. Let me take a shot at it. In marine, the way it works is that either the Coast Guard conducts the investigation and we work with them, but it's usually after the fact. They conduct the hearing, they do the investigation.

In the cases where the investigation is turned over to us, we do everything. And the marine division tends to be much more self-sufficient than the aviation division, which relies on a lot more broad expertise within the Board from the Bureau of Technology, for example. Whereas in marine, we have a lot of that technology within those eight investigators so that we don't have to go to the Bureau of Technology for marine expertise.

Dr. LOEB. For example, in the *Exxon Valdez*, we sent four persons from our marine accident division to the scene of the accident. When we launch on an aviation accident, we send only one person as an investigator-in-charge from our aviation accident division. The rest of the support comes from the Bureau of Technology.

We are far more self-contained within the Bureau of Accident Investigation in the marine area than we are within the other divisions. The staffing looks peculiar because of the nature of the way the marine division has grown up over the years.

Mr. COUGHLIN. Thank you, Mr. Chairman.

Mr. LEHMAN. Does marine include pleasure boat accidents?

Dr. LOEB. We don't investigate small pleasure boats in general, although there was a period of time when there was a study undertaken for very small vessels. Normally, we're talking about vessels that may be capable of transporting six passengers and more, that may be forty feet in length or more. But not generally the very small ones.

Mr. KOLSTAD. Charter boats oftentimes. We've done a lot of charter fishing boat accidents.

ATTRITION RATE

Mr. **LEHMAN**. What is your turnover rate and how does it compare with the past two or three years?

[The information follows:]

Our FY-89 attrition rate was 11 percent, compared to 9 percent in 1988, 13 percent in 1987, and 14 percent in 1986.

PROFESSIONAL STAFF LEVELS

Mr. **LEHMAN**. What has been the change over the past four years in the average level of professional staff in each of your major bureaus?

[The information follows:]

The Board does not maintain historical data on the average level of its professional staff. However, the current average grade level of the Board's professional staff is as follows:

Accident investigation	13.7
Field operations	13.0
Technology	13.0
Safety programs	13.0
Administration	12.0

SUPPORT SERVICES AND ACCIDENT REPORTS AND RECOMMENDATIONS

Mr. **LEHMAN**. Please update for the record the tables on DOT support services and accident reports and recommendations found on page 133 of last year's hearing record.

[The information follows:]

DOT SUPPORT SERVICES

[In thousands of dollars]

	Fiscal year—		
	1989 actual	1990 estimate	1991 estimate
DOT working capital fund:			
Visuals and graphics	7	7	8
Library services	66	69	77
Parking and facilities management	43	45	50
Warehouse management	52	55	60
Headquarters building security	96	101	112
Imprest fund services	5	5	6
Subtotal	269	282	313
Other:			
FAA/HHS health services	13	14	15
FAA payroll services	48	50	56
FAA personnel management information system	13	14	15
Subtotal	74	78	86
Total, DOT support services	343	360	399

The table on accident reports and recommendations is updated below.

	Fiscal year—		
	1988 actual	1989 actual	1990 estimate
Major accident reports (adopted):			
Aviation	9	8	9
Railroad	4	5	5
Highway	5	5	5
Marine	10	8	8
Hazardous materials/pipeline	1	1	1
Total major accident reports	29	27	28
Field investigations (completed):			
Aviation (NTSB)	2,037	2,925	2,925
Aviation (FAA)	298	217	217
Subtotal aviation	2,335	3,142	3,142
Railroad	295	156	156
Highway	128	132	132
Total field investigations	2,758	3,430	3,430
Foreign accident investigations	109	80	80
Recommendations (issued):			
Aviation	128	161	[1] 47
Railroad	107	84	[1] 33
Highway	42	37	[1] 38
Marine	105	104	[1] 74
Pipeline	3	17	[1] 3
Intermodal (includes hazardous materials)	2	8	[1] 9
Total recommendations (issued)	387	411	[1] 204

[1] Actual as of February 27.

STAFFING

Mr. LEHMAN. Last year's justification indicated that you were requesting 157 workyears for accident investigation and 68 for technology for fiscal year 1990. You are now showing 152 workyears for accident investigation and 77 workyears for technology. Have you moved some of your personnel? If so, why?

[The information follows:]

Yes, we have made some minor changes in staff in order to cope with staffing depth problems in our technical specialties which provide technical support to our accident investigation function. Since these technical positions normally take much longer to fill when vacated, we have had to address our lack of depth in this area first by some minor realignments.

STAFF ALLOCATIONS

Mr. LEHMAN. What is the basis for staff allocation by mode on page 13?

Mr. MILLER. It's obviously based on our workload in each of the modes, and that in turn is based on our legislative charter, which requires us, of course, to investigate—a mandatory investigation of so many accidents, all of the accidents in aviation and limited accidents in the other modes.

Mr. LEHMAN. Any aviation accident that has a fatality, you probably investigate, don't you?

Mr. MILLER. Yes, sir, and in addition, any that has any damage or makes the aircraft unflyable.

Mr. Kolstad. I might just mention, Mr. Chairman, that it does not include ultralights but it does include hot air balloon accidents.

Mr. Lehman. Is that a problem? Are hot air balloons a problem now?

Mr. Kolstad. No, sir.

AVIATION INVESTIGATION ALLOCATIONS

Mr. Lehman. What is the basis for your allocations to major accident investigations and field accident investigations?

Mr. Miller. In addition, I would say that obviously the major investigations are those in which there is catastrophic loss of life and generally those in which there is a significant public involvement.

For example, the major accidents are usually air carrier accidents in aviation versus general aviation accidents for the field investigations. Similarly, in rail, major accidents tend to be passenger train accidents, although we obviously get into some hazardous materials, freight train, accidents as well.

CARGO DOOR WARNING SYSTEMS

Mr. Lehman. On page 14, have you commented on FAA's NPRM on cargo door warning systems? If so, what were your comments and if not, why haven't you?

Mr. Kolstad. Mr. Chairman, that NPRM was as a result of our recommendation on the cargo door problem. So that's why we didn't comment on it.

Mr. Lehman. Cargo doors on any particular aircraft?

Mr. Kolstad. On the Boeing 747. I apologize, we did comment on it.

AIR TRAFFIC CONTROLLER TRAINING

Mr. Lehman. On page 16, what actions has FAA taken to improve its training program, quality assurance and safety oversight at its Coast TRACON?

Mr. Kolstad. They have greatly increased the number of fully proficient controllers. They expanded the working area, the employee break area and the training area, and they've upgraded some of the equipment.

FOREIGN AVIATION OPERATIONS

Mr. Lehman. On page 18, what is the status of your recommendations to the FAA involving foreign airport operations and flight crew training for foreign flight operations?

Dr. Loeb. Mr. Chairman, we made six recommendations. One of them was for the FAA to set up an organizational unit to address foreign operations and to provide guidance for foreign operators.

We also made a recommendation to set experience levels before foreign operations would be permitted, experience in foreign operations.

And we made a recommendation that the FAA make use of the ASRS, the Aviation Safety Reporting System, for problems that are encountered in foreign operations.

The FAA has reported back to us in a positive manner for the five. The recommendation on which they have declined to do what we've asked is the one on setting experience levels.

HOUSTON HOBBY RUNWAY INCURSION

Mr. LEHMAN. What did you find was the reason for the two separate flights departing from runway 17 instead of runway 12R at Houston's Hobby Airport?

Mr. KOLSTAD. Mr. Chairman, there was construction going on on the field during that period. And we found that these flight crews had not adequately lined up on the right runway by checking the compass to ensure that they were aligned with the proper runway. We recommended that they do that.

We also recommended that the tower personnel at Hobby visually check to ensure that the aircraft that had been cleared for takeoff properly were lined up on the correct runway, and we asked that better signage be put in and it was.

Mr. LEHMAN. Has that happened yet?

Mr. KOLSTAD. Yes, sir.

Mr. LEHMAN. Have you made a recommendation to FAA regarding other airports that have similar types of construction to prevent this from happening?

Mr. KOLSTAD. I don't know that we specifically addressed that with other facilities, Mr. Chairman, because at Hobby we had a unique situation in which we had two runways that began from the same point at a very close angle to each other. So we don't know of other airports in which that situation has occurred, but unfortunately the construction was occurring on one of those angled runways which shared very close to a common threshold.

If we find other situations that occur in the future in which this is a problem, of course we will make recommendations.

AEROSPATIAL TAIL ROTOR DRIVE SHAFT

Mr. LEHMAN. Also on page 22, did you recommend that the FAA issue an airworthiness directive (AD) requiring inspections of the Aerospatials AS-355 tail rotor driveshaft?

[The information follows:]

On August 19, 1987, an Aerospatiale AS-355P-1 helicopter crashed in the Ship Shoal area of the Gulf of Mexico following a loss of tail rotor drive. The accident resulted in the loss of the aircraft and serious injuries to all three occupants. The Board's investigation revealed that the loss of tail rotor drive was the result of a failure in the tail rotor drive shaft, in the area of one of the coupling flanges. Investigation revealed that there had been no similar failures in the AS-355 fleet.

On November 4, 1988, a second AS-355F-1 crashed in the West Cameron area of the Gulf of Mexico under very similar circumstances as the above cited accident. This accident resulted in the loss of the aircraft, three fatalities, and two serious injuries. Investigation revealed that a loss of tail rotor drive had occurred as a result of a fatigue failure in the tail rotor drive shaft in the area of the forward flange coupling. Loss of tail rotor drive continuity results in the complete loss of tail rotor thrust and possible control of the aircraft from which recovery is doubtful at best, and will normally result in serious injury or death to the occupants.

The Safety Board did not issue a safety recommendation regarding this matter. However, during the early stages of the investigation of the second accident, it became apparent that immediate corrective action had to be taken. This information was verbally communicated by the Safety Board's staff to both the manufacturer and the FAA, resulting in an Aerospatiale issued telex service bulletin on November 22, 1988 that established an inspection program mandatory for all operators, whereas the service bulletin had been recommended and advisory in nature only. In addition, as a result of Safety Board efforts, Aerospatiale designed a totally new drive shaft and the fleet retrofit program was completed on January 31, 1989.

RECOMMENDATIONS

Mr. **Lehman**. You indicate that as a result of your investigation of an Augusta 109 helicopter main rotor blade failure, an AD was issued reducing the service life of the main rotor blades for Augusta helicopters. When you discover things such as fatigue cracks on one particular type of aircraft, do you ever recommend that other producers' aircraft be checked for similar problems?

Mr. **Kolstad**. We certainly do. Let me give you an example. In the JAL Boeing 747 accident in Japan, the Japanese found, and we participated in the investigation in which it was discovered, that the rear bulkhead had failed after it had been repaired by Boeing Aircraft.

The Safety Board made a recommendation that all widebody aircraft be checked and that manufacturers of all widebody aircraft ensure that the aft pressure bulkhead was secure and that repairs be double checked to ensure that this type of failure doesn't occur again.

RAILROAD EVENT RECORDERS

Mr. **Lehman**. Have you followed up with the Federal Railroad Administration to find out why they have not taken any further action on the advance notice of proposed rulemaking to require event recorders on locomotives?

[The information follows:]

The Safety Board responded to the Federal Railroad Administration's (FRA) Advanced Notice of Proposed Rulemaking on this subject, and presented testimony to the FRA at its public hearing. The Safety Board stated that it believed the FRA had misinterpreted the Congressional mandate for the installation of event recorders in the Railroad Safety Act of 1988.

The Safety Board stated to FRA that it ". . . believes that the Congressional mandate is clear on the merits of Train Event Recorders." The Safety Board's safety recommendation history on event recorders began in October of 1969. The recommendations evolved with increasingly sophisticated investigative requirements, but were responded to in an unacceptable fashion by the FRA.

The Safety Board has been advised that the Canadian Government does require event recorders on all types of train movements in Canada. As an additional requirement, the event recorder is interfaced to the safety control system for each leading unit in such a way that a failure of the event recorder will automatically stop that train. The Safety Board supports the Canadian's position that the functioning of the event recorder be considered important.

FATIGUE RELATED ACCIDENTS

Mr. **Lehman**. On page 27, you discuss your recommendations to the Department of Transportation regarding fatigue related accidents. How serious a problem are fatigue and sleep related accidents, and what actions has the Department taken on your recommendations?

[The information follows:]

We have found in numerous accident investigations in all modes of transportation that fatigue is an adverse factor in operator performance. Our May 1989 safety recommendations to the Secretary of Transportation asked that DOT expedite a coordinated research program of fatigue-related matters, develop and disseminate educational material on the issues to transportation industry personnel and management, and to review and upgrade hours of service regulations as necessary. The Secretary's response of August 11, 1989, indicated that the recommendation will receive a high priority among DOT's programs and that a coordinated research effort on fatigue-related matters has been initiated, following which educational programs will be initiated and a review of hours of service regulations will be conducted.

LAP-SHOULDER BELTS

Mr. **LEHMAN**. On page 29, to what extent does poor design result in improper use of motor vehicle lap/shoulder belts?

Mr. **KOLSTAD**. Mr. Sweedler will respond to that.

Mr. **SWEEDLER**. Mr. Chairman, in our recent study on the effectiveness of lap/shoulder belts, we found a number of areas where design did contribute to misuse and lack of use. Those two areas primarily deal with the window shade device that allows the occupant of the car to move the belt away from them to give them more slack and that degrades the effectiveness. And also the upper anchorage point for some people is either too high or too low, and it's not comfortable, and therefore they either don't wear the belt or put the belt behind them or under their arm, and those two situations could be very dangerous in accidents. So there are areas of design that can be improved to encourage people to wear their belts.

Mr. **LEHMAN**. What's going to make them change their design?

Mr. **SWEEDLER**. We're very pleased that the manufacturers have all generally agreed to start phasing out the window shade devices, so that will start happening within the next year or two.

As far as adjustable upper anchorage points, some cars already have them. But those are not U.S. made cars, they're cars that are coming—some from Europe and some from Japan. But I think as we see more and more of those I think competition will probably encourage the American companies to follow suit.

But we don't see any action on the part of NHTSA at this point. We did ask for some, but they're not moving forward on that.

Mr. **LEHMAN**. Do you believe these belts are properly designed in a manner to facilitate their use?

[The information follows:]

Two aspects of current lap/shoulder belt design encourage misuse: The lack of adjustable upper anchorages and the existence of lap/shoulder belts equipped with a tension-relieving device known as "windowshade." Many people complain about the position of the shoulder harness on their body—some women find it uncomfortable and short adults of all sexes feel the shoulder harness is positioned too close to their neck or face for comfort. Without a means to raise or lower the anchor point for the shoulder harness, they cannot adjust the belt to their liking. As a result, they may resort to misrouting the shoulder harness either under the arm or behind their back, with tragic consequences should an accident occur.

The second design concern is the windowshade-equipped belt. Manufacturers explain that this kind of belt was designed to allow people to introduce more comfort into the belt system, and thus encourage belt use. Foreign cars, however, traditionally equipped with lap/shoulder belts without this feature, have historically shown far higher use rates than the windowshade-equipped American cars. The Safety Board views windowshade-equipped belts with concern since the slack introduced by the occupant does not disappear at the time of the crash and a slack belt simply cannot provide the same crash protection as a snug one. Up to 17 inches of slack can be introduced by a windowshade device.

PRESTANDARD SCHOOLBUSES

Mr. **Lehman**. What efforts has the Board made to encourage states to enact legislation establishing a mandatory retirement age for the old prestandard school buses?

Mr. **Kolstad**. Mr. Chairman, we wrote to every governor in all fifty states, asking them to pass legislation to take these school buses out of service when they reached the end of their useful life and to see that they're retired. One of the concerns that we had is that these school buses have a secondary life with some churches as church buses.

And so we have followed up with a number of church organizations to also advise them of the dangers of these pre-1977 buses, to ensure that they're not only phased out of school bus service, but that they're phased out of the carriage of passenger transportation all together.

COAST GUARD LIFESAVING EQUIPMENT NPRM

Mr. **Lehman**. Has the Board commented on the Coast Guard's notice of proposed rulemaking on lifesaving equipment?

[The information follows:]

The Safety Board did comment on the lifesaving equipment NPRM, and a copy of that correspondence is below.

National Transportation Safety Board
Washington, D.C. 20594

Office of the Chairman

November 15, 1989

Commandant (G-LRA-2/21)(CGD 84-069)
U.S. Coast Guard
2100 Second St., S.W.
Washington, D.C. 20593-0001

Dear Admiral Yost:

The National Transportation Safety Board has reviewed the notice of proposed rulemaking (NPRM), Lifesaving Equipment (CGD 84-069). Although many of the Safety Board's concerns regarding lifesaving equipment have been addressed by the NPRM, there are other concerns which have not been adequately addressed. The Safety Board offers the following comments:

1. Under the section titled "General Discussion of the Proposed Regulations," it is stated that certain proposed regulations contained in the NPRM exceed the SOLAS 74/83 requirements because the SOLAS 74/83 requirements are vague or do not address certain important safety problems. The NPRM specifically requested comments on proposals which exceed or are not addressed in SOLAS 74/83. The Safety Board supports the Coast Guard's effort to clarify the often obscure requirements of SOLAS, and to address safety problems about which SOLAS is silent.

2. Sections 199.15(f) and 199.135(c) of the NPRM propose that each vessel equipped with a liferaft not served by a launching appliance, and each vessel equipped with an inflatable buoyant apparatus, be required to have rail or bulwark openings, or appropriate mounting arrangements to facilitate launching. As a result of our investigation of the explosion and fire on board the U.S. chemical tankship PUERTO RICAN, the Safety Board issued Safety Recommendation M-86-34 on April 18, 1986 recommending that the U.S. Coast Guard:

   > Require liferafts to be installed so that unnecessary lifting, such as over railing, will not be required when they are manually launched.

   Since sections 199.15(f) and 199.135(c) in the NPRM appear to fulfill the intent of Safety Recommendation M-86-34, the Safety Board favors its adoption.

3. Section 199.15(g) proposes the retrofitting of gravity davits on all tankships in ocean, coastwise, or Great Lakes service by July 1, 1991. The Safety Board has been in favor of such a

requirement for many years. As a result of our investigation of the collision between the U.S. Coast Guard Cutter BLACKTHORN and the U.S. tankship CAPRICORN, the Safety Board issued on August 28, 1980, Safety Recommendation M-80-79, which recommended that the U.S. Coast Guard:

> Require all U.S. merchant vessels over 1,600 gross tons to be equipped with at least one motor lifeboat on each side and gravity davits throughout.

Since section 199.15(g) of the NPRM fulfills the intent of Safety Recommendation M-80-79, at least as far as tankships are concerned, the Safety Board favors its adoption.

4. Section 199.15(h) proposes a requirement for the installation of totally enclosed lifeboats on tankships in ocean, coastwise, or Great Lakes service by July 1, 2001. The Safety Board has recognized the need for totally enclosed lifeboats for many years. As a result of our investigation of the 1975 collision between the U.S. chemical tankship EDGAR M. QUEENY and the Liberian tankship CORINTHOS, the Safety Board issued on October 27, 1977, Safety Recommendation M-77-35 to the Coast Guard, which stated:

> Develop and promulgate specifications for an enclosed, firesafe, self-contained lifeboat for installation aboard oceangoing vessels of 10,000 or more deadweight tons.

Since section 199.15(h) partially fulfills the intent of Safety Recommendation M-77-35, the Safety Board favors its adoption. We will continue to highlight the need for totally enclosed lifeboats on other types of vessels in future accident investigations.

5. As stated on page 16220 of the NPRM's Preamble, the major equipment requirements proposed in the NPRM apply immediately only to those vessels constructed on or after July 1, 1986. Existing vessels will be required to meet those requirements that were in effect for them on June 30, 1986. However, section 199.15 of the proposed regulations also proposes requirements for the phasing in of major lifesaving equipment improvements on existing vessels by specified dates. The equipment to be phased into service include totally enclosed lifeboats (by July 1, 2001) and gravity davits (by July 1, 1991) on all cargo and tank vessels in ocean, coastwise, and Great Lakes service. This represents a major philosophical change in the Coast Guard's approach to lifesaving equipment. The Safety Board has been striving for a limitation on grandfather rights for primary lifesaving equipment for many years because we believe that "grandfathering" primary lifesaving equipment allows substandard equipment to remain in

critical service and creates two standards of safety. The Safety Board is gratified that the Coast Guard has taken this action, and fully supports this initiative.

However, section 199.15 is silent concerning the requirement that totally enclosed lifeboats be self-righting. This may be because the requirement for self-righting may become part of the new Subchapter Q. Nevertheless, the Safety Board would like to take this opportunity to remind the Coast Guard that we consider the ability of an enclosed lifeboat to right itself to be essential. As a result of its investigation of the 1985 collapse of the U.S. mobile offshore drilling unit PENROD 61, the Safety Board on September 16, 1986 issued Safety Recommendation M-85-105, which recommends that the Coast Guard:

> In conjunction with the regulatory project to incorporate new SOLAS Convention covered lifeboat standards into the U.S. Code of Federal Regulations, include a requirement that existing covered lifeboats that do not meet the new standards shall be phased out of service onboard mobile offshore drilling units within a reasonably short period of time.

The new SOLAS Convention covered-lifeboat standards include a requirement that covered lifeboats be self-righting, and the Safety Board considers the self-righting capability to be an instrinsic part of the covered lifeboat.

6. Section 199.30 proposes that, except for a vessel on an international voyage constructed on or after July 1, 1986,

> (a) An exposure suit approved under former Subpart 160.071 of this chapter is an immersion suit for the purposes of this subchapter, and
>
> (b) An unapproved suit in use on the vessel before November 1, 1980 is accepted for use on that vessel in place of an immersion suit if-
> (1) It is similar or identical to an approved suit; and
> (2) It is in serviceable condition.

The Safety Board opposes the acceptance of any "unapproved" immersion suit, and especially opposes the acceptance of "unapproved" immersion suits that were manufactured and placed in service before November 1, 1980. The Board believes that immersion suits are crucial to survival in cold water environments and that it is neither safe nor practical to determine what is "similar" to an approved suit. Only those suits that meet current performance standards and that possess current approval should be allowed in service.

7. Section 199.62 proposes portable two-way radiotelephone equipment requirements for survival craft and section 199.64 proposes requirements for the carriage of EPIRBs and SARTs (Search and Rescue Transponders). As a result of its investigation into the capsizing and sinking of the U.S. drillship GLOMAR JAVA SEA in 1983, the Safety Board issued Safety Recommendation M-84-54 on November 14, 1984 to the Coast Guard:

   > Require as soon as possible that all U.S. Coast Guard approved survival craft be provided with a radio device capable of transmitting a distress signal.

   Additionally, as a result of its investigation of the disappearance of the U.S. freighter SS POET in 1980, the Safety Board issued Safety Recommendation M-81-56 on June 23, 1981 to the Coast Guard:

   > Seek standby legislative authority at an early date to require satellite emergency position indicating radiobeacons on U.S. vessels as soon as a satellite system is operational.

   Since section 199.62 fulfills the intent of Safety Recommendations M-84-54 and M-81-56, the Safety Board supports the adoption of this section of the NPRM.

8. Section 199.64(c) exempts nonself-propelled vessels under tow from the requirement to carry an EPIRB. The test for an EPIRB requirement should not be whether or not a vessel is self-propelled. If the vessel is manned and is going to operate in an ocean, short international, or coastwise voyage, it ought to be provided with an EPIRB. Many times towed barges become separated from the towing vessel and, when this happens, the towing vessel often loses sight of the barge. Also, this section would exempt certain types of MODUs like the ROWAN GORILLA I, which had a large crew on board and which became separated from its towing vessel and capsized in the North Atlantic, from the requirement to carry EPIRBs. The Safety Board opposes this exemption for those towed vessels on such voyages which have persons on board.

9. Section 199.72(a)(1)(i) clarifies the requirement to carry an adequate number of child-size lifejackets. The Safety Board believes that this clarification is necessary and supports adoption of this section of the NPRM.

10. Section 199.78 proposes that lifejackets be distributed throughout the cabins, staterooms, and berthings, and other places convenient for each person permitted on board. Table 199.175(c), item 24, proposes that two lifejackets be carried in each lifeboat, and section 199.272 proposes that each vessel with an inflatable

liferaft stowed in a remote location have enough lifejackets to equal the capacity of the liferaft stowed at the liferaft station. None of these sections adequately address the need to stow lifejackets at embarkation stations on passenger ships. As a result of our investigations of the PILGRIM BELLE and the MISSISSPPI QUEEN/CRIMSON GLORY accidents, the Safety Board issued Safety Recommendation M-86-62, which recommends that the Coast Guard:

> Conduct research to determine the best location for stowing life preservers on all passenger vessels. In the interim, require that life preservers be stowed outside of passenger and crew berthing rooms and closer to or at emergency stations.

On February 19, 1987, the Coast Guard replied as follows:

> The Coast Guard does not concur with this recommendation. The present regulations require life preservers to be distributed in places convenient for passengers and crew. This cannot be determined by "research," but only by careful consideration of the design and arrangement of each vessel. A vessel like the PILGRIM BELLE will often be underway at night and make port calls during the day when passengers may go ashore. This means that in the time they spend on board, passengers and crew will frequently be in or near their staterooms. On other vessels where passengers spend their time in the public spaces, those spaces may be the most appropriate locations to stow the life preservers. In any case, the emergency stations would not be the appropriate place. In an emergency, persons on board should get their life preservers as soon as possible in case they do not have time to get to the emergency stations.

The Safety Board classified Safety Recommendation M-86-62 as "Closed--Unacceptable Action" on October 10, 1987. As a result of its investigation of the explosions and fires aboard the tankship OMI YUKON, the Safety Board found that because lifejackets and immersion suits had been stowed in each person's stateroom aboard the OMI YUKON and most persons aboard were on the main deck, the crew were unable to return to their staterooms to retrieve their lifejackets and immersion suits. Contrary to the Coast Guard statement that emergency stations are not "the appropriate place" for lifejackets and immersion suits, the OMI YUKON accident again showed that locating lifejackets and immersion suits closer to or at emergency stations is the appropriate place. As a result, the Safety Board issued Safety Recommendation M-87-31 for the Coast Guard to require that lifejackets and immersion suits be stowed outside of passenger and crew berthing rooms and closer to or at emergency stations. The Coast Guard rejected Safety Recommendation M-87-31 and on February 2, 1989, M-87-31 was classified as "Closed-

-Unacceptable Action." The need for the stowage of lifejackets at emergency stations was demonstrated again on March 15, 1988, when fire broke out on board the Bahamian passenger ship SCANDINAVIAN STAR while 438 mainly U.S. citizen passengers were on board. During this fire passengers tried to go back to their cabins through smoke-filled passageways to retrieve their lifejackets. The Safety Board urges the Coast Guard to reconsider its position and require that lifejackets be provided at muster stations for all passengers in addition to those lifejackets stowed in the cabins. Further, the Safety Board urges that immersion suits be stowed outside of passenger and crew berthing rooms and closer to or at emergency stations.

11. Section 199.80(a)(8) proposes requirements regarding station bill duties assigned to the crew concerning the care of passengers during an emergency; however, it does not include a requirement that a crewman be specifically assigned to take a roll call of the passengers. In addition, section 199.80(a)(8) does not specify what action to take to account for those passengers missing from a roll call. The Safety Board believes that the taking of an accurate roll at an emergency muster of passengers is critical to passenger safety. As a result of its investigation of the fire and explosion on board the Panamanian passenger ship EMERALD SEAS on July 30, 1986, the Safety Board issued on April 28, 1987 Safety Recommendation M-87-20 to Admiral Cruises, Inc.:

    > Before a ship leaves port, provide the crewmember in charge of each lifeboat with a list of passengers assigned to his/her lifeboat.

    As a result of its investigation of the March 15, 1988 fire on board the Bahamian passenger ship SCANDINAVIAN STAR, the Safety Board issued on July 6, 1989, Safety Recommendation M-89-60 to SeaEscape, Inc.:

    > Prior to departure from port, provide the crewmember in charge of each muster station and lifeboat station with a list of passengers assigned to those stations.

    These recommendations were directed to individual companies because the ships involved in these accidents were not U.S. flag vessels. The Safety Board believes that there is a need for the specific requirement for a passenger roll call at emergency muster stations, and urges the Coast Guard to include such a requirement in section 199.80(a)(8).

12. Section 199.160 sets forth rescue boat recovery standards (each rescue boat launching appliance must be capable of hoisting the rescue boat when loaded with its full rescue boat complement of persons and equipment at a rate of not less than 0.3 m/sec.[59 ft./min]). The Safety Board views this as a needed adjunct to the

requirement to have a rescue boat and supports the adoption of this section of the NPRM.

13. Section 199.202 requires passenger vessels 500 gross tons and over to carry at least one rescue boat on each side of the vessel, and passenger vessels less than 500 gross tons to carry at least one rescue boat. Section 199.202 requires rescue boats on passenger vessels operating in harbors, in sheltered lakes, or in river service that meet Subpart 160.056 (rather than SOLAS requirements) to be equipped with motors. As a result of our investigation of the MISSISSIPPI QUEEN/CRIMSON GLORY accident, the Safety Board issued Safety Recommendation M-86-75, which recommended that the U.S. Coast Guard:

> Require that all passenger vessels which carry 50 or more passengers be equipped with at least one motorized rescue boat carried in a position for rapid launching.

The Safety Board supports a requirement for the carriage of motorized rescue boats, as specified in section 199.202. However, we are opposed to the use of gross tonnage as the determining factor as to whether or not rescue boats are necessary. The Board believes that some other criteria which reflects the true physical size of the vessel and which also takes into account the number of passengers on board should be applied to this requirement.

14. Section 199.261(i) exempts cargo vessels operating in water 59°F and above, vessels not in ocean or coastwise service and small vessels operating on the continental shelf of the United States in the Gulf of Mexico from the requirement to carry lifeboats, liferafts, and inflatable buoyant apparatus if lifefloats of sufficient capacity to accommodate all persons on board are carried. Lifefloats do not provide out-of-the-water flotation to survivors. Such flotation provides more than just hypothermic protection to survivors. It also:

1. provides protection from marine predators;
2. provides support for unconscious or injured survivors;
3. does not require survivors to exert themselves to maintain themselves above water;
4. provides a platform that permits the use of survival equipment such as signalling and electronic homing devices; and
5. provides protection from the inadvertent ingestion of sea water.

As a result of our investigation of the PILGRIM BELLE accident, the Safety Board issued Safety Recommendation M-86-61, which recommended that the U.S. Coast Guard:

> Require that all passenger vessels except for ferries on river routes on short runs of 30 minutes or less have primary lifesaving equipment that prevents immersion in the water for all passengers and crew.

Lifefloats (and noninflatable buoyant apparatus) are antiquated pieces of survival gear that should no longer be allowed on board inspected vessels. They should be phased out of service, just as the cork life preserver and the calcium carbide water light were phased out of service. The Safety Board opposes the continued use of lifefloats and noninflatable buoyant apparatus as primary lifesaving devices.

15. Section 199.405(d) exempts liftboats from the requirement to have launching appliances for liferafts. The Safety Board believes that there is no justification for such a blanket exemption. Some liftboats are quite large and liferafts on such vessels would be stowed a great distance from the water, even when the vessel is not elevated. Also, if the vessel were elevated and it became necessary to abandon ship, launching appliances might be crucial.

16. Section 199.645 sets forth the requirements for station bills on board MODUs. In its report of the 1985 collapse of the U.S. mobile offshore drilling unit PENROD 61, the Safety Board highlighted the need for the establishment of a clear-cut chain of command below the toolpusher for the orderly and disciplined execution of abandon-rig operations in an emergency. The Safety Board believes that section 199.645 should include a specific requirement that the chain of command for emergencies be set forth in the station bill.

17. Sections 35.10-1 and 35.10-2 (tankships), 78.17-50 and 78.17-55 (passenger vessels), and 97.15-35 and 97.15-40 (cargo and miscellaneous vessels) set forth crew training requirements for emergency drills and also sets forth new requirements concerning the execution of such drills. The Safety Board recognizes the importance of these requirements and fully supports the adoption of these sections of the NPRM.

18. Section 78.17-50 proposes that abandon ship drills, which involve the passengers, be conducted as follows:

    1. Within 24 hours after embarkation of passengers for a vessel on an international voyage that is not a short international voyage.

    2. On departure or within 24 hours after embarkation of passengers for a vessel on a short international voyage of more than one 1-day's duration.

For a voyage of less than 1-day's duration, no drill is required. However, the attention of the passengers must be drawn to the emergency instructions required under section 199.80(a) and (c).

As a result of the Safety Board's investigation of the 1984 fire on board the Bahamian passenger ship SCANDINAVIAN SUN, the Safety Board issued on July 9, 1985, Safety Recommendation M-85-59 to the U.S. Coast Guard to:

> Propose to the IMO an amendment to SOLAS 74 to require that passenger ships on short international voyages conduct drills or safety orientations for passengers at emergency muster stations immediately upon departure from port. Safety orientation briefings should include a demonstration on the donning of life preservers, evacuation or disembarkation routes, information concerning the function of automatic fire doors, and actions to take in the event of a fire or other emergency.

Then, as a result of its investigation of the 1985 grounding of the U.S. passenger vessel PILBRIM BELLE, the Safety Board issued on May 28, 1986, Safety Recommendation M-86-60 to the Coast Guard to:

> Require fire and boat (abandon ship) drills which include passengers reporting to their emergency muster station on all passenger vessels within 24 hours of departure on cruises that are more than 1 day's duration.

Since the proposals contained in section 78.17-50 fulfill the intent of Safety Recommendations M-85-59 and M-86-60, the Safety Board supports the adoption of this section of the NPRM.

The Safety Board believes that this proposed rulemaking addresses important safety isssues and is pleased to have had the opportunity to make these comments.

Respectfully,

Original Signed By
James L. Kolstad

James L. Kolstad
Acting Chairman

SMALL VESSEL LICENSING AND MANNING REQUIREMENTS

Mr. LEHMAN. To what extent are you satisfied with the progress made by the Coast Guard to upgrade the manning and licensing requirements on small passenger vessels?

[The information follows:]

The Coast Guard's responses to the Safety Board's recommendations relating to licensing and manning have indicated general concurrence. Their responses also indicated that these matters would be studied further and the degree of implementation would be proposed in a future Notice of Proposed Rulemaking. A docket (CGD-85-080A) of proposed revisions to the manning regulations for small passenger vessels was established in coordination with the Notice of Proposed Rulemaking for Small Passenger Vessel Inspection and Certification published in the January 30, 1989, Federal Register. The Safety Board anticipated some progress would be forthcoming but on March 2, 1990, we were informed that the Coast Guard was planning to cancel the docket and attempt to address these issues by publishing policy guidance in their Merchant Marine Manual.

While the Safety Board would prefer that the recommendations be implemented by regulations, which are more enforceable, the mechanism of internal policy directives may be faster. Until we receive the Coast Guard's specific implementation proposals we cannot be certain whether or not the Coast Guard responses will be adequate, as to substance. The timeliness of implementation will be inadequate.

PIPELINE SAFETY

Mr. LEHMAN. You indicate on page 37 that the Transportation Research Board of the National Academy of Sciences made 26 recommendations to improve public safety near pipelines. To what extent did the Board participate in this effort, and are you monitoring the implementation of these recommendations?

Dr. LOEB. The answer is we did participate, Mr. Chairman. The study that resulted in the 26 recommendations was done as the result of a Safety Board recommendation. We provided them with documentation, with answers to questions and we are indeed monitoring the progress of that.

PIPELINE SAFETY RECOMMENDATIONS

Mr. LEHMAN. Would you provide for the record the status of any of these recommendations that were directed to RSPA?

[The information follows:]

Recommendations for improvement of Federal activities made in the Transportation Research Board's Special Report 219 and the actions taken are:

Recommendation: The federal regulations that require gas pipeline operators to develop damage prevention programs be extended to operators of liquids pipelines, and that both liquids and gas pipeline operators be required to participate in one-call operations or to create new one-call systems if none exist.

Action taken: The Office of Pipeline Safety (OPS) issued a notice of proposed rulemaking that would incorporate into the liquid pipeline regulations the same requirement for damage prevention programs now contained in the gas pipeline requirements.

Recommendation: One-call centers meet minimum standards, such as those established by the Utility Location and Coordination Council of the American Public Works Association, so that they can provide the range of services needed by pipeline operators to satisfy federal damage prevention regulations.

Action taken: The OPS initiated a study of one-call systems to determine means to measure their effectiveness and to determine what minimum standards should be established when one-call systems are used by pipeline operators to comply with applicable provisions of the damage prevention program requirements. It is expected that performance standards for one-call systems will be established based on the findings of this study.

Recommendation: All states enact damage prevention statutes, incorporate federal regulations requiring pipeline operators to join one-call systems, and improve compliance. Measures for improving compliance include requiring state and local permitting agencies to obtain proof of notification from persons securing building or excavation permits, increasing the liability of contractors and pipeline operators who ignore notification requirements, and clarifying responsibility for enforcement.

Action taken: The OPS is encouraging the States to implement this recommendation by encouraging enactment of damage prevention laws during its annual audits of state pipeline safety programs and by reducing the amount of grant-in-aid for those States that have not enacted appropriate statutes.

Recommendation: Federal regulations be clarified to provide pipeline operators with guidelines for satisfying public education requirements, and a demonstration program be initiated by the pipeline industry in cooperation with public safety officials to develop a mechanism for ongoing notification of residents near pipelines.

Action taken: The Safety Board is not aware of any action by the OPS now in progress or planned.

Recommendation: The federal government should provide more specific guidelines concerning pipeline operator's responsibilities for satisfying the emergency preparedness requirements of federal safety regulations. At a minimum these should include providing emergency contact numbers as well as pipeline location and product information to local fire departments.

Action taken: Through a rulemaking action, the OPS is incorporating into 49 CFR 192 the more comprehensive emergency response requirements now in 49 CFR 195. Also, the OPS is planning to require that the locations of pipelines be provided to local governments when requested.

Recommendation: Federal and state training programs for emergency response to hazardous materials accidents should be modified, with input provided by the pipeline industry, to include information on emergency planning and response procedures for pipeline failures.

Action taken: The OPS now is distributing to the States a training film that provides instruction on responding to pipeline emergencies. Additionally, in response to Safety Board Recommendations (P-72-48, P-85-32, and P-87-20, the American Petroleum Institute has initiated a project to develop guidelines for its members to use in preparing coordinated emergency response preparedness plans with communities and for better educating the public on actions to take in hazardous liquid emergencies. Also, the Gas Pipeline Technology Committee has issued guidance on actions to be taken by the first gas employee arriving at the scene of an emergency and has developed in coordination with emergency response associations proposed guidance to gas operators in their development of emergency response plans.

HAZARDOUS MATERIALS RECOMMENDATIONS

Mr. LEHMAN. Have you made any recommendations to the joint RSPA-FAA task force that is studying the shipment of hazardous materials?

Dr. LOEB. Mr. Chairman, we indeed did make recommendations. We made, I believe, six recommendations. There has been a final rule implemented by the FAA regarding materials used in the manufacture and fabrication of the Class B cargo holds. There is also rulemaking underway which we hope will implement the rest of our recommendations.

Mr. LEHMAN. Can you provide for the record a list of the recommendations and the actions?

Dr. LOEB. Certainly.

[The information follows:]

The recommendations made to the FAA and the actions taken are as follows:

A-88-121

> Develop written guidelines for use by persons responsible for inspecting air carrier facilities, require those persons to determine if hazardous materials warning notices are "prominently displayed" in all required locations, and require corrective actions as necessary.

The FAA agrees with the intent of this safety recommendation and has initiated efforts to increase emphasis on hazardous materials warning sign requirements. On

October 1, 1988, the FAA amended the hazardous materials inspector report form to include a specific entry for warning signage. All FAA security inspectors are required to inspect warning signs during air carrier comprehensive hazardous materials facility inspections to ensure that the warning signs are displayed in an appropriate area. The FAA is amending the guidance material contained in its memorandum dated January 19, 1981, to define the specific requirements of the hazardous materials warning sign under the provisions of 14 CFR 175.25. The new guidelines will be forwarded to all civil aviation security inspectors.

A-88-122

Require fire/smoke detection systems for all class D cargo compartments.

A-88-123

Require a fire extinguishment system for all class D cargo compartments.

A-88-125

Review the certification of all types of cargo compartments to identify any aluminum or other components that fail to meet thermal protection requirements at least equal to cargo compartment liner thermal protection requirements. Require that all safety deficiencies be corrected.

A-88-127

Consider the effects of authorized hazardous materials cargo in fires for all types of cargo compartments, and require appropriate safety systems to protect the aircraft and occupants.

The FAA is considering issuing a notice of proposed rulemaking (NPRM) proposing to amend 14 CFR Parts 25, 121, and 135 to require fire and smoke detection systems and a fire extinguishing system for all class D cargo compartments that are more than 200 cubic feet in volume. The FAA believes that the current requirements of 14 CFR Part 25, combined with the recently amended cargo compartment liner and cargo container requirements of 14 CFR 25.855, provide an acceptable level of safety for cargo compartments of 200 cubic feet or less in volume. Additionally, the FAA has reviewed all of the comments to Notice 87-11 which proposes to make the recent changes to 14 CFR 25.855 applicable to 14 CFR Parts 121 and 135.

A-88-124

Evaluate prohibiting the transportation of oxidizers in cargo compartments that do not have fire/smoke detection and fire extinguishment systems, and determine if other classes of hazardous materials should also be excluded from cargo compartments without these safety systems.

The FAA states that it does not have the authority to prohibit or eliminate the transportation of hazardous materials by aircraft without appropriate regulatory change. The Department of Transportation's Research and Special Programs Administration (RSPA) is the agency that would have to initiate such rulemaking. A task force has been formed consisting of representatives of the FAA and RSPA's Office of Hazardous Materials Transportation to address the issues of this safety recommendation. The task force will review the adequacy of the existing regulations as they pertain to the transportation of oxidizers and other hazardous materials on board aircraft in Class D cargo compartments, evaluate all hazardous materials classed as oxidizers to determine if some or all should be prohibited from transportation on board passenger-carrying aircraft, and determine if other hazardous materials should be prohibited.

PERSONS HANDLING HAZARDOUS MATERIALS—DOT NPRM

Mr. LEHMAN. On page 39, has the Board commented on the Department's notice of proposed rulemaking regarding the training of persons who load and unload hazardous materials?

Dr. LOEB. We haven't commented on the rulemaking, however, we have addressed the issue. In fact, recently in a Safety Board report on an accident that occurred at Altoona, Iowa involving the Iowa Interstate Railroad, we expressed our concerns about the adequacy of the training of those persons loading and unloading the materials.

EMERGENCY RESPONSE CAPABILITIES

Mr. LEHMAN. Are you satisfied with the Department's new requirements for emergency response information?

[The information follows:]

The final rule issued by the DOT on June 22, 1989, provided improved emergency response communication capabilities. Among other improvements, shipping papers now are required to contain more complete information on the hazardous materials being transported so that emergency responders will be able to more readily identify the specific chemical materials, the constituents of waste materials, and materials that are toxic. Also, shipping papers must contain a telephone number that will provide 24-hour per day telephonic access to the shipper and/or persons knowledgeable of the hazards of the materials being transported.

Although it has required almost seven years to achieve, these improvements respond adequately to Safety Board recommendations made following its investigation in 1982 of a highway cargo tank overturn in which flammable liquids were released at Odessa, Delaware, and to recommendations made following its investigation in 1984 of a highway cargo tank failure in which hazardous wastes were released at Orange County, Florida.

INVESTIGATIVE RESOURCES

Mr. LEHMAN. Under management objectives, you refer to allocating the Board's investigative resources to provide the highest potential safety payoff. Have you made any adjustments in the allocation of your investigative resources during the past year?

Mr. KOLSTAD. Mr. Chairman, we haven't made any adjustments to the investigative resources. We have made some adjustments in terms of allocating resources. We've allocated more resources to the Office of Administrative Law Judges to try and address this growing backlog of cases and we have also moved some of the editorial function to the Bureau of Accident Investigation to improve on both the timeliness and the quality of the written accident reports.

One of the other areas that we're addressing is the hiring of technical writers to participate in accident investigation and to prepare the reports, so that we can take our investigators out of the role of being unskilled writers and let them investigate, and hire writers to do the writing task. We're in the process of hiring technical writers at the present time that will be assigned to the accident investigation.

Mr. LEHMAN. I was just asking staff about what portion of your people are field staff in relation to home office staff in Washington.

Mr. KOLSTAD. About one-third of the Board's staff is in the field.

MANAGEMENT IMPROVEMENTS

Mr. LEHMAN. You referred to implementing cost-effective management improvements. What have you done in this area during the past year?

Mr. KOLSTAD. One of the things that we have done, as I mentioned, is to move the editorial function. We've also developed a new accident data form that I think is a much more efficient form, so that we're not collecting extraneous information that nobody needs. It's a much faster form for our investigators to follow.

I think that we have streamlined our purchasing ability by providing a rapid draft. If our investigators are on the scene of an accident and they need to purchase rope, etc., up to a certain dollar limit, they have the authority to do this without checking with Washington. I think that's proven to be an effective tool in just speeding up the process.

PRODUCTIVITY

Mr. Lehman. Have you taken any other actions during the past year to increase your staff's productivity and what have been the results of these actions?

[The information follows:]

In addition to moving the editorial function; developing a new accident data form; and implementing a rapidraft system; I have established regular transportation/industry workshops, which have helped to develop better relations with the DOT modal administrations and industry groups to make our staff's dealings with those entities more productive. I have seen the greatest results of this action in the much improved relationship we now enjoy with the Federal Railroad Administration. The FRA has become much more responsive to our formal recommendations, and also more cooperative parties to our investigations.

I have increased the number of Administrative Law Judges by hiring one Judge and contracting for another to help reduce the backlog of aviation appeals. I also have streamlined the decision-making process for hiring and rewarding staff by delegating more authority to Board managers.

ACCIDENT INVESTIGATION SELECTION CRITERIA

Mr. Lehman. Have you made any changes in your accident investigation selection criteria during the past year? If so, what changes are you making?

Mr. Kolstad. No, sir, we have not made any changes in that area, but we're looking at it.

ADAMS, MASSACHUSETTS CESSNA ACCIDENT

Mr. Lehman. On page 47, what has the FAA's response been to your eleven recommendations issued as a result of the Cessna crash near Adams, Massachusetts?

[The information follows:]

As a result of the Safety Board's investigation of the Cessna accident near Adams, Massachusetts on September 17, 1988, Safety Recommendations A-89-110 through -120 were issued on December 5, 1989, and addressed to the Federal Aviation Administration (FAA). The FAA responded to these safety recommendations in a letter dated February 23, 1990. This response was received by the Safety Board on February 27, 1990 and has not yet been evaluated. A copy of the FAA response is attached.

US Department
of Transportation

**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

FEB 23 1990

The Honorable James L. Kolstad
Chairman, National Transportation
  Safety Board
800 Independence Avenue, SW.
Washington, DC 20594

Dear Mr. Chairman:

This is in response to Safety Recommendations A-89-110 through -120 issued by the Safety Board on December 5, 1989. These safety recommendations were issued as a result of the Board's investigation of an accident on September 17, 1988, involving a Cessna 172. The airplane crashed into a mountain near Adams, Massachusetts, at approximately 1859 local time. The pilot was seriously injured and the two passengers were fatally injured. The pilot was flying visual flight rules from Westerly, Rhode Island, to Bennington, Vermont. At the time of the crash, the pilot was communicating with the Boston Air Route Traffic Control Center (Boston Center).

A-89-110. Require controllers in terminal radar facilities, when assigning a transponder code to a VFR aircraft in an emergency status, to execute computer commands so that the computer-assigned code will not inhibit the minimum safe altitude warning (MSAW) alarm.

FAA Comment. The Federal Aviation Administration (FAA) agrees with the intent of this safety recommendation. The FAA will issue an action notice directing controllers to assign transponder codes to visual flight rules (VFR) aircraft in emergency status that will allow minimum safe altitude warning (MSAW) alarms whenever practicable.

I will provide the Board with a copy of the notice as soon as it is issued.

A-89-111. Require controllers in terminal radar facilities, when providing emergency assistance to a VFR aircraft that has been assigned a transponder code which allows a computer status change but inhibits the minimum safe altitude warning (MSAW), to change the computer status of that aircraft so that the MSAW alarm feature is not inhibited.

FAA Comment. The FAA agrees with the intent of this safety recommendation. The FAA will issue an action notice directing controllers to change the beacon code of VFR aircraft in emergency status to one that will provide MSAW alarms whenever practicable.

I will provide the Board with a copy of the notice as soon as it is issued.

A-89-112. Provide radar control trainees in the en route option at the Radar Training Facility an emergency situation in which a VFR pilot is asking for assistance, is caught in weather, but is below the minimum IFR altitude.

FAA Comment. The FAA agrees with the intent of this safety recommendation. The FAA will review the En Route Radar Training Facility Course No. 50127 to include simulation training instruction as requested by this safety recommendation.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-89-113. Provide radar control trainees in the terminal option at the Radar Training Facility an emergency situation in which a VFR pilot is asking for assistance, is caught in weather, but is below the minimum vectoring altitude.

FAA Comment. The FAA agrees with the intent of this safety recommendation. Classroom instructions addressing the type of situation described in the Board's accident report are presently administered at the FAA Academy during the Radar Training Facility Course No. 50027. The FAA agrees that classroom instruction alone is insufficient and would be effectively reinforced through the use of simulation training techniques. The FAA will, therefore, develop a simulation lesson plan to be administered by the FAA Academy that includes the scenario recommended in this safety recommendation.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-89-114. Advise all radar controllers and supervisors currently working in en route and terminal facilities of the importance of following procedures provided in paragraph 9-10 of handbook 7110.65, Air Traffic Control, when providing assistance in emergencies; illustrate the importance of following procedures by providing the account of the accident described in this letter (A-89-110 to -120); and provide training on the proper handling of VFR pilots in weather difficulty below the minimum vectoring altitude or minimum IFR altitude.

FAA Comment. The FAA agrees with the intent of this safety recommendation. The FAA will issue an article in its Air Traffic Bulletin to remind controllers of the importance of the procedures mentioned in this safety recommendation.

Additionally, emergency procedures are a part of the annual air traffic controller proficiency development. The FAA believes that this training, along with the action notice to be issued in response to Safety Recommendations A-89-110 and -111, will increase controller awareness and understanding of the situation.

I will provide the Board with a copy of the article as soon as it is published.

A-89-115. Amend handbook 7110.65, Air Traffic Control, paragraph 9-24, "Radar Assistance to VFR Aircraft in Weather Difficulty," by changing the term "minimum safe altitude" to "safe altitude (MEA/MOCA/MVA/MIA)" so that the term does not become confused with "minimum safe altitude" (MSA) as defined in the FAA's Pilot/Controller Glossary.

FAA Comment. The FAA agrees with the Safety Board that the term "minimum safe altitude" in Handbook 7110.65, paragraph 9-24, can be confused with the term "minimum safe altitude" as defined in the Pilot/Controller Glossary. However, the term "safe altitude" is not synonymous with MEA/MOCA/MVA/MIA and is, therefore, not easily understood. The FAA believes that the wording in Handbook 7110, paragraph 9-24, should be modified to read: "the appropriate minimum altitude (MEA/MOCA/MVA/MIA)." The FAA will issue a change proposal and will distribute this proposal for comment.

I will keep the Board apprised of the FAA's progress on this safety recommendation.

A-89-116. Amend handbook 7110.65, Air Traffic Control, to require controllers to transmit the phrase "Caution, Terrain Clearance Not Provided" when issuing a vector to a VFR aircraft, or an IFR aircraft under emergency conditions, that is below the minimum vectoring altitude or minimum IFR altitude.

FAA Comment. The FAA does not believe that this requirement should be included in Handbook 7110.65. There are circumstances when it may be a good technique to tell the pilot that the controller is not providing terrain and obstacle clearance. However, requiring that controllers tell aircraft in distress that he/she is not providing terrain clearance in all cases could be counterproductive. The pilot in distress, whether in VFR or IFR conditions, will not necessarily benefit from being told that terrain clearance is not provided. Instead, this transmission could increase tension in the cockpit, as well as add to the number of transmissions at this critical moment. I believe that the actions taken in response to Safety Recommendations A-89-112, -113, and -114 will enhance the training and experience of terminal and en route radar controllers to manage situations addressed by the subject recommendation. These efforts are considered more constructive than mandating a requirement for a controller which may not offer a constructive option to a pilot.

Paragraph 9-1d of Handbook 7110.65F states: "Because of the infinite variety of possible emergency situations, specific procedures cannot be prescribed. However, when you believe an emergency exists or is imminent, select and pursue a course of action which appears to be most appropriate under the circumstances and which most nearly conforms to the instructions in this manual." I believe that the current procedures and the actions proposed in the companion safety recommendations address the intent of this safety recommendation.

I consider the FAA's action to be completed, and I plan no further action on this safety recommendation.

A-89-117. Provide direction and training to all first-line air traffic control supervisors regarding the immediate courses of action that should be taken if they observe a controller under their supervision making an error while working actual traffic that would create a dangerous situation.

FAA Comment. The FAA does not agree with this safety recommendation. The FAA believes that the circumstances surrounding this specific accident were local and not an FAA-wide discrepancy. Directives and procedures are already in existence regarding the course of action that should be taken by a first-line supervisor when observing a controller making an error while working actual traffic. The FAA's procedures require that a supervisor ensure that appropriate corrective actions are taken whenever controller deficiencies are noted.

On November 22, 1988, the air traffic manager at Boston Center published revised emergency checklists concerning controller actions, supervisory actions, and area manager-in-charge duties. The area supervisor emergency checklist states, in part, that the area supervisor is charged with the responsibility for safe and effective handling of the emergency.

I believe that the FAA's current procedures address the intent of this safety recommendation, and I plan no further action.

A-89-118. Provide the capability of displaying the maximum elevation figure (MEF) to controllers in air route traffic control centers (ARTCC) via the radar display.

FAA Comment. The maximum elevation figure (MEF) is a duplication of warning software service that already exists within the VFR elements of the en route minimum safe altitude warning (E-MSAW) enhancement. The addition of a functionality list usually generates added clutter to the radar scope. This is especially significant when the combined functions of

E-MSAW, Conflict Alert, Mode C Intruder, and the Arrival Sequencing Program/En Route Spacing Programs are in an operational mode. The FAA will, however, revisit the proposed MEF requirement in light of the functions listed above and replace it with emphasis on the application of advisory procedures presently available and functional.

Additionally, an associated software and training cost of 12 to 18 months for operational implementation of a new MEF function can be anticipated. It is noted that the proposed radar display of the MEF would utilize a corridor concept without definitive aircraft position. The benefit appears small in relationship with the present positive tracking mechanism.

A-89-119. Provide information to all air traffic controllers detailing the actions they should expect from first-line supervisors if, in the supervisor's judgment, the controller's actions while working actual traffic have been incorrect and have created a dangerous situation.

FAA Comment. The FAA does not agree with this safety recommendation. The FAA believes that the circumstances surrounding this specific accident were local and not an FAA-wide discrepancy. Directives and procedures are already in existence regarding the course of action that controllers should expect from first-line supervisors when, in the supervisor's judgment, the controller's actions have been incorrect. The FAA's procedures require that a supervisor ensure that appropriate corrective actions are taken whenever controller deficiencies are noted.

On November 22, 1988, the air traffic manager at Boston Center published revised emergency checklists concerning controller actions, supervisory actions, and area manager-in-charge duties. The area supervisor emergency checklist states, in part, that the area supervisor is charged with the responsibility for safe and effective handling of the emergency.

In the first quarter of calendar year 1989, the FAA's New England Region issued an alert bulletin regarding the handling of emergencies and emergency checklists. This procedure was a mandatory briefing item for all air traffic control personnel in the New England Region.

Additionally, Article 65, Section 1, of the agreement between the National Air Traffic Controllers Association and the FAA, effective May 1989, states that in the event of a difference in professional opinion between the employee and the supervisor, the employee shall comply with the instructions of the supervisor.

I believe that the FAA's current procedures address the intent of this safety recommendation, and I plan no further action.

A-89-120. Issue a General Notice (GENOT) to all controllers reminding them that a conscious effort must continually be made to identify and correct communication errors that pilots make in response to controllers' transmissions.

FAA Comment. The FAA does not believe that there is a need to issue a GENOT as recommended by this safety recommendation. There have been several efforts taken by the FAA to address this issue. During the period of October 1 through December 31, 1988, the FAA's Pilot/Controller Communications Awareness Initiative Working Group was established to foster improved communications between pilots and controllers as a means of reducing operational system problems, increasing user professionalism, and enhancing system safety. The working group published a document entitled "CALL TO ACTION" to provide an overview of 12 vital areas of communications concerns that were responsible for a great proportion of controller/pilot incidents. I have enclosed a copy of the document for the Board's information. This document was distributed to all air traffic controllers, all user organizations, all interested international organizations, and to a vast majority of private pilots through the FAA's Accident Prevention Program. Several of the major airlines have incorporated this document into their training program.

In August 1989, the FAA published an Air Traffic Bulletin addressing the readback/hearback issue as a mandatory briefing item. The FAA is in the process of publishing another article in the next issue of the Air Traffic Bulletin to address this same issue. I have enclosed a copy of the August 1989 Air Traffic Bulletin for the Board's information.

I believe that the FAA has met fully the intent of this safety recommendation. I consider the FAA's action to be completed, and I plan no further action on this safety recommendation.

Sincerely,

JB Busey

James B. Busey
Administrator

Enclosures

RUNWAY INCURSIONS

Mr. **LEHMAN**. You refer to the continuing problem of runway incursions. Last year, you told us that this was one of the issues you discussed at your first workshop with the FAA Administrator. It was also mentioned that the FAA had convened a task force on this problem. What progress, if any, has been made in this area?

Mr. **KOLSTAD**. I'm going to let Mr. Kampschror respond to this.

Mr. **KAMPSCHROR**. Mr. Chairman, the FAA task force produced a draft report on the problems in September 1989. Briefly, their current solutions seem to be procedural in nature, and ultimately they provide for an automated ground conflict alert system, and we tend to believe that the FAA should accelerate the automated system as quickly as possible.

Mr. **KOLSTAD**. I might just add, Mr. Chairman, the area of runway incursions is of growing concern to us. There has been a great deal of attention being paid to airborne conflict of two aircraft and the development of the Threatened Collision Avoidance System, but there's been a great lack of attention to the ground problem. We still have a runway incursion as the cause of the greatest single aviation disaster in history, which was the accident at Tenerife.

We've had other occasions in the past two years that are potentially equally frightening. We think that this whole area of runway incursions is an extremely important one and one that we hope to get FAA to focus more attention on.

Mr. **LEHMAN**. And perhaps training of the flight controllers to concentrate as much on directing traffic on the ground as they do in the air.

Mr. **KOLSTAD**. Absolutely.

ADVANCED TRAIN CONTROL SYSTEMS

Mr. **LEHMAN**. You state that although the railroad industry is actively involved in designing and testing advanced train control systems, the FRA does not require such safety devices. Do you believe there should be federal regulations in areas such as this where the industry is actively addressing the problem?

Dr. **LOEB**. Mr. Chairman, we believe there is a role for the FRA in the development of the advanced train control systems. In particular, we have recommended that the FRA take an active role to ensure that, when the system is finally implemented, that it include as a part of that system the positive separation of trains. So we have recommended that they do this, and hope that they will. They have not so far seemed inclined to do that.

PASSENGER CAR SAFETY

Mr. **LEHMAN**. What other railroad passenger car safety devices do you still believe are required?

Mr. **KOLSTAD**. Mr. Chairman, there's still some very basic changes that need to be made that don't involve a large economic impact to the industry, and those would involve better seat locks.

We still have rotating seats, even on some new railroad cars like the cars that were involved in the collision in Stockton, California. Also we have problems with luggage restraints and emergency egress; we think that it would be relatively easy to improve in all three of those areas.

Mr. **Lehman**. Has there been a problem of luggage falling on top of people?

Mr. **Kolstad**. Absolutely. Yes, sir.

Mr. **Lehman**. What are you going to do when you have a 300-mile-an-hour train? Do you anticipate that happening?

Mr. **Kolstad**. Obviously, before we get to that stage, we should have enclosed luggage racks so that wouldn't happen.

ALTON, TX, HIGHWAY ACCIDENT

Mr. **Lehman**. When do you expect to issue your report on the September 1989 school bus accident near Alton, Texas?

[The information follows:]

The Board hopes to complete action on this accident in late Spring 1990.

HEAVY TRUCK STUDY

Mr. **Lehman**. What have you learned to date from Phase II of your review of heavy truck accidents and when do you expect to complete this effort?

[The information follows:]

We have learned a great deal from the Board's study of heavy truck accidents. We are in the process of publishing the first two reports from this effort. The first is a compilation of case summaries and the second is a safety study of fatigue, alcohol, other drugs and medical issues in fatal-to-the driver heavy truck crashes. In addition, we are reviewing data for possible development of safety studies related to vehicle crashworthiness, conspicuity, railroad grade crossings, and an in-depth study of fatigue.

In the completed study, the Safety Board found that 33 percent of the fatally injured drivers tested positive for alcohol and other drugs of abuse. The most prevalent drugs found were marijuana and alcohol, followed by cocaine, methamphetamines/amphetamines, other stimulants, and codeine and phencyclidine (PCP).

The study also found that fatigue and the interaction of fatigue and drug use was a major factor in causing accidents.

In addition, the study found that for the fatally injured drivers:

The most frequently cited accident probable cause was fatigue (57), followed by alcohol and other drug use impairment (53), and misjudgment of a safe speed (25);

Based on Safety Board probable cause determination, 31 percent (57 of 185) of the drivers were fatigued; of this number, 33 percent (19 of 57) were impaired by alcohol and/or other drugs;

The driver's medical condition caused or contributed to 10 percent of the accidents. This calls into question the effectiveness of the Federal program to assure the proper medical qualification of commercial vehicle drivers;

Older drivers are less likely to have tested positive for drugs of abuse, but are more likely to have had an incapacitating medical incident;

A higher percentage of drivers who used drugs are single, separated or divorced;

Drivers with at least one suspended or revoked license are more likely to have used drugs of abuse;

There is a strong association between violation of the Federal hours of service regulations and drug usage; and

There is a significant relationship between a drivers' prior alcohol and /or other drug offenses and a positive test for drugs of abuse in these accidents. This points up the need for thorough background checks and pre-employment drug tests.

The study also reviews the regulations and legislation governing commercial truck operations; previous relevant research in the field of alcohol and other drug abuse; and the highway accident databases now in existence. The study notes the limitations of those databases as a means with which to assess the scope of the alcohol and other drug abuse problem in heavy truck accidents.

The Safety Board noted that there is also the need for a standardized set of procedures to be followed for conducting alcohol and other drug tests when a fatal heavy truck accident takes place.

As a result of this safety study, recommendations have been issued to the Department of Transportation, the National Highway Traffic Safety Administration, the Federal Highway Administration, the Department of Health and Human Services, Governors of the States, the National Governors Association, trucking industry trade associations, the International Brotherhood of Teamsters, law enforcement associations and the Professional Truck Driver Institute of America. Recommendations include:

Establishment of a national commercial truck database derived from existing databases and new data to provide information on fatal accidents and truck operations;

Establishment of a program to standardize post-accident toxicological specimen collection, testing, and reporting for truck accidents;

Revision of the Fatal Accident Reporting System to include standard drug toxicological test results;

Improvement of pre-employment drug and alcohol screening;

Improvement of medical screening and disqualification standards;

Requirements for automated devices to identify commercial drivers who exceed hours of service regulations;

Establishment of fatigue, alcohol and other drug education campaigns oriented toward commercial drivers;

Improvement of drug recognition capabilities among law enforcement and other personnel with commercial truck driver oversight responsibilities;

Enactment of State laws requiring toxicological testing following all commercial accidents;

Development of programs to conduct selective alcohol and other drug enforcement actions;

Enactment of State legislation to establish 0.01 BAC as the per se alcohol concentration for commercial vehicle operators;

Review and report on industry structure, operations, and conditions which create incentives to violate hours of service and use drugs of abuse;

Establishment of a demonstration project(s) that includes alcohol and other drug testing at inspection lanes, weigh stations, and special sobriety checkpoints; and

Establishment of hours of service violations, logbook violations, and alcohol violations as reasonable cause requiring a drug test of the driver.

AUTOMATIC SLACK ADJUSTERS

Mr. LEHMAN. It has been more than ten months since NHTSA completed its research on an automatic slack adjuster. Has NHTSA indicated to you whether they are going to initiate rulemaking?

Dr. LOEB. Mr. Chairman, there are still some portions of the study underway right now. In fact, there is a fleet study that has not yet been completed. One of the problems, supposedly, is the reliability of the devices, and they're still attempting to assess this.

We have recommended the use of slack adjusters and we do not know how soon NHTSA will, although they indicate some time this year.

DIESEL ENGINE RETARDERS

Mr. LEHMAN. Would you provide for the record the response of FHWA and NHTSA to your recommendations on diesel engine retarders?

[The information follows:]

On November 29, 1989, the Safety Board issued Safety Recommendation H-89-38 to the National Highway Traffic Safety Administration (NHTSA) and Safety Recommendation H-89-45 to the Federal Highway Administration (FHWA) concerning engine retarder system. The Safety Board is awaiting responses to these safety recommendations.

SAFETY STUDIES

Mr. **Lehman**. Under Safety Studies, would you indicate for the record the projected completion dates by month and year for the safety studies listed on pages 63 through 68?

[The information follows:]

The projected completion dates by month and year for the safety studies in our fiscal year 1991 budget are as follows:

1. Annual Review of Aviation accidents:
   a. 1988 General Aviation—October 1990.
   b. 1988 Air Carrier—November 1990.
2. Statistical Review of Instructional Flying Accidents—June 1990.
3. Small Turbine-Powered Transport Category Airplanes—March 1991.
4. Light Twin-Engine Airplane Accidents Following Engine Failure—January 1991.
5. Transport of Hazardous Materials by Rail—October 1990.
6. Train Separation and Collision Avoidance (Impact Study)—in planning for 1991.
7. Safety of Regional Railroads—September 1990.
8. Highway Work Zones—April 1991.
9. Heavy Truck Safety (new title)—Alcohol, Other Drugs, Fatigue, and Medical Factors in Fatal-to-the-Driver Heavy Truck Crashes—March 1990.
10. Heavy Truck Cab Crashworthiness—September 1990.
11. Heavy Truck Stopping Performance and Braking Related Stability—June 1991.

HAZARDOUS MATERIALS BY RAIL

Mr. **Lehman**. It was indicated that your study of the transport of hazardous materials by rail was originally scheduled to be completed in July 1989. Has this study been completed? If not, what's the reason for the delay?

Mr. **Sweedler**. Mr. Chairman, the study has not been completed yet. We decided to extend the time frame that we would investigate accidents, so we could have a greater data base on which to base our study and recommendations. The investigation phase has just been completed. We're finishing the accident investigations reports now, and we hope to have the study completed some time this year.

Mr. **Lehman**. Have you made any recommendations prior to the completion of your study?

Dr. **Loeb**. We have not made any recommendations as a result of the study. However, we have made recommendations regarding the shipment of hazardous materials by rail since the implementation of the study.

For example, in the recent derailment at Helena, Montana, or the Montana rail link, we made a number of recommendations regarding shipment of products that prior to this were not considered to be dangerous. In this particular case, they were pellets of plastics and hydrogen peroxide. They mixed eventually to produce an enormous explosion.

We also have recommended that chlorine gas when it's shipped in cars of under 18,500 pounds the gallons be equipped with headshields and that has not been done yet.

REGIONAL RAILROADS

Mr. **Lehman**. On the study of the regional railroad systems, are the accident rates on these railroads relatively higher than on the large railroads?

Mr. KOLSTAD. It's not that the accident rate is higher, it's the fact that some of the same problems keep turning up time after time on the regional rail systems. These systems are the children of larger systems and usually involve abandoned trackage that have been purchased by a small company in attempting to operate an economical operation. In some cases, before this trackage is abandoned, it's allowed to run down to a very dangerous state. Over these regional railroad systems moves an awful lot of hazardous material. So we're very concerned about the training of some of the railroad crews and we're concerned about roadbed.

We had an instance, I believe it was in Illinois where we had a serious accident involving a head on collision of two regional railroads and based upon that, we launched a study to see whether the problems that we had identified in some of the regional railroads was characteristic of a bigger problem.

HIGHWAY WORK ZONES

Mr. LEHMAN. You are also planning a study of highway work zones. The Federal Highway Administration has had a work zone safety research program for years. Do you intend to review the effectiveness or direction of this research in your own study?

Mr. KOLSTAD. We certainly do.

Mr. LEHMAN. Mr. Coughlin, would you take over some questions for me, please?

AVIATION APPEALS

Mr. COUGHLIN. Yes, Mr. Chairman.

You are requesting $3,610,000 and 36 FTEs for this part of your organization policy and direction. Your request includes an increase of two appeals attorneys, which would give you a total of five such positions. The comparable workload measure is estimated to increase by 22 percent. Why are you projecting only a 22 percent increase in cases closed when you are increasing the number of appeals attorneys by 67 percent?

Mr. MILLER. Mr. Coughlin, the workload figures that you cited really aren't comparable. The certificate and license appeals refers to the initial decisions by our Administrative Law Judges. That is going up, as you correctly state, from about 1100 to about 1350, the 22 percent increase.

In about 25 percent of those cases, the appellant appeals to the full Board. And it's on those cases that the attorneys prepare draft opinions and orders for the Board and those figures, the comparable figures, would be going from about 251 cases this fiscal year to a projected 350 cases, assuming we get the two additional attorneys.

TRANSPORTATION SAFETY POLICY

Mr. COUGHLIN. You state that the Board Members establish policy on transportation safety issues. What safety policies were established or modified by your Board during the past year?

[The information follows:]

The Board Members establish policy on transportation safety issues by their review and subsequent adoption of accident reports, safety studies, safety recommendations, and budget requests. It is through these products that the Board establishes its policy on various transportation issues and makes them known to other Federal, state, and local government agencies, as well as the transportation industry and the traveling public.

The intent of the description on page 69 of the Safety Board's budget document with respect to policy development, was to indicate that the Board Members establish policy and positions with respect to transportation safety issues and problems to be pursued by the staff. Such "safety policies," however, are applicable only to the Safety Board itself and do not represent Executive Branch or national policy positions. Examples of such Safety Board policies adopted by the Board in the past year include:

the decision to urge the phase out of all pre-1977 schoolbuses from use as a bus for any purpose;

the need for both the Coast Guard and the NTSB to have additional authority to investigate marine accidents involving foreign cruise vessels, carrying U.S. citizens, which occur in internaitonal waters;

the position that excess flow valves should be required on all new and renewed high-pressure gas distribution service lines; and

the need to insure that airliner brakes will perform to their certificated standards when they approach their allowable wear limits.

PERSONNEL REALIGNMENTS

Mr. COUGHLIN. Are you currently considering any personnel realignments or management actions to improve the efficiency or effectiveness of your programs?

[The information follows:]

I will be making some organizational changes and I am, now, in the process of reviewing the whole Safety Board organizational structure to determine which alignments would provide the greatest improvement in our efficiency and effectiveness. In addition, as I have stated before, and as is reflected in this budget request, I am committed to improving the Board's critical staffing depth situation; providing more staff training (both technical and professional); and obtaining higher grade levels for our senior staff so that we will be able to retain our employees.

AVIATION COMPUTER DATA

Mr. COUGHLIN. Last year, you were working on a computer program to allow you to input all aviation investigation data directly into your computer from your regional offices, and you were studying the feasibility of reducing the amount of data collected on general aviation accidents. What have you accomplished in these two areas?

Mr. BANKS. Mr. Coughlin, we have completed the redesigning of the forms. They have been printed. They will be put into use starting about the fifteenth of next month for a short test period, approximately 90 days, and as soon as that's complete, if we are satisfied with it, we will then implement the program in the field where all the aviation data can be input from the regional offices.

GOVERNMENT, PUBLIC AFFAIRS AND GENERAL COUNSEL

Mr. COUGHLIN. Would you indicate for the record the size of your government liaison and public information office and your office of general counsel and provide some workload data for each of these offices for fiscal years 1988, 1989, and 1990?

[The information follows:]

The Board's Offices of Congressional and Intergovernmental Relations and Public Affairs are presently staffed with 3 and 5 in dividuals, respectively. No specific workload data is maintained for these offices. The Office of General Counsel has had a staff of seven positions for Fiscal Years 1988, 1989, and 1990.

Opinons and orders in aviation and marine safety enforcement proceedings

Fiscal year:	
1988	207
1989	206
1990 (through February 11)	73

The backlog of cases as of January 1990 was 265, the highest ever.

ACCIDENT INVESTIGATION FTE

Mr. COUGHLIN. Under Accident Investigation, you are requesting 161 FTE's and $13,990,000 for accident investigations. This is an increase of nine FTE's above your fiscal year 1990 level. What will this increase provide in terms of increased accident investigations, additional safety recommendations and more timely reports?

Mr. KOLSTAD. I certainly plan on it resulting in more timely reports. I think it can result in four more major reports. With respect to recommendations, I hope that it results in recommendations that we can succeed in getting implemented.

It will result in the ability to produce more recommendations, but I'm much more concerned about the quality and the implementation of recommendations than I am the pure number of recommendations.

Mr. COUGHLIN. Please provide additional quantitative data for the record.

[The information follows:]

With the 9 additional positions in the Bureau of Technology, in conjunction with the additional positions in Accident Investigation, the Board will be able to complete the following additional workload items:

Major accident investigations	4
Field and other accident investigations	256
Safety recommendations	30

In addition, we should see about a 1 month improvement in the timeliness of issuing our accident reports.

Mr. COUGHLIN. What was the basis for your allocation of this increase among the various modes of transportation?

Mr. KOLSTAD. Two basic things: one is workload and the other is staffing depth, the fact that we simply have not had the luxury of having any depth in many of our critical areas.

Mr. COUGHLIN. On page 12, you estimate that you'll complete 28 major accident reports in fiscal year 1990. How many reports did you issue in the first four months?

Dr. LOEB. Mr. Coughlin, we have produced so far seven reports. However, I think we're right on target for our 28.

PRIORITY SAFETY RECOMMENDATIONS

Mr. COUGHLIN. Would you provide for the record a listing of the three highest priority safety recommendations you have made to each modal administration that remain in an open status, including the nature of the recommendation and the date when it was first made?

[The information follows:]

FEDERAL AVIATION ADMINISTRATION:

Safety Recommendation A-89-55, issued: July 21, 1989.

> Revise the regulations governing the certification of aviation technician maintenance schools and the licensing of airframe and powerplant mechanics to require that the curriculum and testing requirements include modern aviation industry technology.

Safety Recommendation A-89-62, issued: July 21, 1989.

> Revise the National Aviation Safety Inspection Program objectives to require that inspectors evaluate not only the paperwork trail, but also the actual condition of the fleet airplanes undergoing maintenance and on the operational ramp.

Safety Recommendation A-89-67, issued: July 21, 1989.

> Require that all turbojet transport category airplanes certificated in the future, receive full scale structural fatigue testing to a minimum of two times the projected economic service life. Also require that all currently certificated turbojet transport category airplanes that have not been fatigue tested to two lifetimes, be subjected to such testing. As a result of this testing and subsequent inspection and analysis, require manufacturers to identify structures susceptible to multiple site damage and adopt inspection programs appropriate for the detection of such damage.

FEDERAL HIGHWAY ADMINISTRATION:

Safety Recommendation H-88-18, issued May 10, 1988:

> Require all States that have not done so within the last year to conduct underwater inspections of all their bridges founded on spread footings for evidence of scour (such as movement of riprap, development of scour holes in the stream bed, and changes in the stream bed material composition) placing priority on these bridges with non-redundant designs.

Safety Recommendation H-88-24, issued June 15, 1988:

> Revise Title 49 Code of Federal Regulations Part 391 (Federal Motor Carrier Safety Regulations) to require a motor carrier to verify the authenticity of a medical examiners' certificate if the certificate has been prepared by a physician who has not been selected by the motor carrier to perform the examination. Information concerning the fact that verification was made should be retained as part of the driver's qualification file.

Safety Recommendation H-89-19, issued June 5, 1989:

> Amend 49 CFR 391.23 to require operators of commercial passenger-carrying motor vehicles to obtain pertinent information, i.e. previous employment history, driving records, driving experience and training and to determine that the applicants are fully qualified and adequately trained, before permitting them to operate commercial passenger-carrying vehicles.

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION:

Safety Recommendation H-88-30, issued December 12, 1988:

> Publish a final rule by June 1990 that will require automatic slack adjusters on all new trucks equipped with air/mechanical brake systems.

Safety Recommendation H-89-6, issued June 5, 1989:

> Revise Federal Motor Vehicle Safety Standard 301 to provide additional protection for school buses in severe crash situations based on an evaluation of the merits of relocating fuel tanks, providing additional structure to protect fuel system components, and using frangible valves in critical locations.

Safety Recommendation H-88-8, issued May 10, 1988:

> Amend Federal Motor Vehicle Safety Standard 208 to require that windowshade-equipped lap/shoulder belts either be tested with the maximum amount of slack that can be introduced or that they be equipped with pretensioner as part of the belt system to ensure, during a crash, the elimination of any slack introduced into the system prior to the accident.

MARITIME ADMINISTRATION:

> No "open" safety recommendations addressed to the Maritime Administration.

UNITED STATES COAST GUARD:

Safety Recommendation M-84-48, issued November 21, 1984 (to the Secretary of Transportation):

> Direct the Commandant of the U.S. Coast Guard to address immediately the early promulgation of personnel qualification and manning regulations for mobile offshore drilling units.

Safety Recommendation M-89-43, issued August 8, 1989:

> Seek legislative authority to regulate and directly surveil the safety of foreign passenger vessels as a condition for operating from U.S. ports.

Safety Recommendation M-89-140, issued November 28, 1989:

> Seek legislative authority to investigate accidents in international waters involving any passenger vessel regularly operating from U.S. ports and embarking U.S. passengers, including but not limited to such accidents as groundings; collisions; loss of main propulsion or, steering; or loss resulting in a reduction of maneuvering capabilities; or an occurrence materially and adversely affecting the vessel's seaworthiness or fitness for service or route, including fire, flooding, or failure of or damage to fixed fire-extinguishing systems, lifesaving equipment, or auxiliary power generating equipment.

RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION:

Safety Recommendation P-84-26, issued June 18, 1984:

> Amend Federal regulations governing pipelines that transport highly volatile liquids to require a level of safety for the public comparable to that now required for natural gas pipelines.

Safety Recommendation P-87-2, issued March 24, 1987:

> Amend 49 CFR Parts 192 and 195 to require that operators of pipelines develop and conduct selection, training, and testing programs to annually qualify employees for correctly carrying out each assigned responsibility which is necessary for complying with 49 CFR Parts 192 or 195 as appropriate.

Safety Recommendation P-87-3, issued March 24, 1987:

> Amend 49 CFR 192.459, External Corrosion Control, examination of buried pipelines when exposed, to require pipeline operators to fully expose and fully examine pipelines exposed for any reason. The exposure and examination should continue until corroded or other damaged areas are no longer encountered.

FEDERAL RAILROAD ADMINISTRATION:

Safety Recommendation R-85-129, issued January 15, 1986:

> Establish regulations that address the issues surrounding the use of radios for operational purposes on trains to include, but not be limited to, requirements for radios to be installed on trains; usage requirements for inter- and intra-train communications; usage requirements for dispatching and control operations; frequency compatibility requirements; and maintenance, inspection, and testing requirements.

Safety Recommendation R-87-16, issued May 19, 1987:

> Promulgate Federal standards to require the installation and operation of a train control system on mainline tracks which will provide for positive separation of all trains.

Safety Recommendations R-87-23, issued September 9, 1987; R-88-20, issued June 28, 1988; and R-89-51, issued July 14, 1989 (these three safety recommendations address the issue of locomotive crashworthiness):

> R-87-23: Promptly require locomotive operating compartments to be designed to provide crash protection for occupants of locomotive cabs.
>
> R-88-20: Modify Title 49 Code of Federal Regulations Part 229 to require compatible main frame sill height standards.
>
> R-89-51: Promulgate regulations requiring that locomotives be equipped with shelf couplers compatible in strength with the main frame sill of the locomotive.

URBAN MASS TRANSPORTATION ADMINISTRATION:

Safety Recommendation R-86-34, issued August 13, 1986:

> Require that all employees involved in a rail rapid transit accident with a fatality, injury, or property damage be tested in a timely manner for alcohol and drugs.

Safety Recommendation R-86-38, issued August 13, 1986:

> Encourage the creation of effective employee assistance programs to detect and treat substance abuse among rail rapid transit employees in safety-sensitive positions.

Safety Recommendation R-86-39, issued August 13, 1986:

> Require that rail rapid transit companies equip with operable radios all trains operating in revenue service.

RECOMMENDATION ACCEPTANCE RATE

Mr. COUGHLIN. Would you also provide a listing similar to that on page 148 of last year's hearing record indicating the status of the recommendations made to each modal administration in fiscal year 1989 and fiscal year 1990 to date?

[The information follows:]

RECOMMENDATION ACTIVITY REPORT FOR DOT

	Fiscal Year 1989									Fiscal Year 1990 TO DATE								
	Number				Percent of Number Issued					Number				Percent of Number Issued				
Modal Administration	Issued	OAA	OAAA	OUA	CAA	CAAA	CUA	Other*	Total	Issued	OAA	OAAA	OUA	CAA	CAAA	CUA	Other*	Total
FAA	142	33%	2%	9%	18%	1%	4%	34%	100%	38	0%	0%	0%	0%	0%	0%	100%	100%
FHWA	6	17%	17%	17%	0%	0%	0%	50%	100%	5	0%	0%	0%	0%	0%	0%	100%	100%
FRA	17	0%	0%	0%	0%	0%	0%	100%	100%	3	0%	0%	0%	0%	0%	0%	100%	100%
NHTSA	8	75%	0%	0%	13%	0%	0%	13%	100%	1	0%	0%	0%	0%	0%	0%	100%	100%
RSPA	8	25%	0%	13%	0%	0%	0%	63%	100%	2	0%	0%	0%	0%	0%	0%	100%	100%
USCG	43	23%	0%	0%	2%	0%	5%	70%	100%	47	0%	0%	0%	0%	0%	0%	100%	100%
MARAD	0	0	0	0	0	0	0	0	0%	0	0	0	0	0	0	0	0	0%
SLS	0	0	0	0	0	0	0	0	0%	0	0	0	0	0	0	0	0	0%
UMTA	0	0	0	0	0	0	0	0	0%	0	0	0	0	0	0	0	0	0%
SECDOT	6	50%	0%	0%	17%	0%	0%	33%	100%	10	0%	0%	0%	0%	0%	0%	100%	100%
Total	230	30%	2%	7%	12%	0%	3%	46%	100%	106	0%	0%	0%	0%	0%	0%	100%	100%

* Includes:
Open - Awaiting Response
Open - Response Received
Closed - No Longer Applicable
Closed - Reconsidered
Closed - Superceded

DOT RECOMMENDATION ACCEPTANCE RATES

Mr. **Coughlin.** Please update for the record the data on DOT acceptance rates found on page 149 of last year's hearing record.

[The information follows:]

RATE OF ACCEPTANCE OF CLOSED RECOMMENDATIONS

[In percent]

	CAA + CAAA/total closed			Percentage acceptance rate since 1967[1]
	Since 1967	Since 1980	Difference	
DOT (Secretary)	72	59	−13	82
FAA	76	76	0	78
FHWA	79	81	2	83
FRA	62	42	−20	69
MARAD	69	44	−25	100
NHTSA	68	50	−18	73
RSPA	59	45	−14	73
UMTA	70	47	−23	77
USCG	66	60	−6	71
Total	72	71	−1	76

[1] (OAA-OAAA-CAA-CAAA)/(Total-OAR-ORR-CNLA-CS).

BUREAU OF TECHNOLOGY

Mr. **Coughlin.** Under bureau of technology, you are requesting 86 staff years and $7,930,000 for this bureau. This is an increase of nine staff years above your fiscal year 1990 level. What will these additional positions provide in terms of increased productivity for the bureau?

Mr. **Kolstad.** Mr. Kampschror will answer this.

Mr. **Kampschror.** Mr. Coughlin, this will enable us to complete our accident investigations in a more timely manner, which is one of Chairman Kolstad's objectives. Also, we will not have to borrow investigators from the regional offices, which we do frequently now and we'll be able to devote more time to training our people.

Mr. **Coughlin.** Please provide additional quantitative data for the record.

[The information follows:]

With the 9 additional positions in the Bureau of Technology, in conjunction with the additional positions in Accident Investigation, the Board will be able to complete the following additional workload items:

Major accident investigations	4
Field and other accident investigations	256
Safety recommendations	30

In addition, we should see about a 1 month improvement in the timeliness of issuing our accident reports.

BUREAU OF TECHNOLOGY

Mr. **Coughlin**. Would you update for the record the table on page 149 of last year's hearing record showing how many personnel you have assigned to each of the seven divisions?

[The information follows:]

PERSONNEL FOR THE BUREAU OF TECHNOLOGY

	Filled positions	Vacancies
Program area:		
Human Performance Division	9	2
Survival Factors Division	10	1
Aviation Engineering Division	6	3
Operational Factors Division	8	3
Surface Engineering Division	9	2
Engineering Services Division	10	0
Materials Laboratory Division	6	2

RECRUITING PROBLEMS

Mr. **Coughlin**. In the past, you have referred to recruiting problems for certain engineering positions, particularly aviation, railroad safety and automotive engineers. Are you still experiencing recruiting problems and how many vacancies do you have in these areas?

Mr. **Kolstad**. We have about six vacancies, Mr. Coughlin. And we're probably going to always experience some difficulty in filling these specialty areas. I might note that in the pipeline area, most of the people that we're getting come from the petroleum industry, and it's just very difficult to hire a petroleum engineer who is skilled in pipeline because of the high salaries. I'm hopeful that with the upgrading of some of our positions that we will be a more attractive career source for some of these people looking for good jobs.

Mr. **Coughlin**. Why are you proposing to allocate eight of your nine new positions to aviation?

Mr. **Kolstad**. Frankly because this is really where the need has traditionally been.

HUMAN PERFORMANCE RECOMMENDATIONS

Mr. **Coughlin**. What were the two or three most significant human performance recommendations during the past year?

Mr. **Kolstad**. I think there are many, but let me mention three. One is fatigue, another one is the human performance factor in maintenance and inspection that has surfaced on the aging aircraft issue. And another one would be changes in drug and alcohol rules.

OPERATIONAL FACTORS RECOMMENDATIONS

Mr. **Coughlin**. What were the three most significant recommendations on operational factors made during the past year?

[The information follows:]

1. Eleven recommendations to the Federal Aviation Administration (FAA) on May 23, 1989, concerning air traffic control (ATC) operations at the Coast Tracon in the Los Angeles basin following a near midair collision between a British Airways Boeing 747 and an American Airlines BAe 146. The recommendation addressed problems with the physical condition of the facility, controller staffing and training, management of the airspace, and oversight of ATC operational errors.

2. On September 26, 1989, with adoption of the report of the Delta Airlines Boeing 727 accident that occurred in Dallas, Texas on August 31, 1988, the Board adopted a number of safety recommendations to the FAA related to improvements in FAA inspection and surveillance of air carrier operations.

3. On November 15, 1988, the Board issued one recommendation to the FAA concerning deficiencies in ATC operations in the Northeast Corridor and the need for a system safety and efficiency review. The FAA conducted the review in 1989 and produced 157 recommendations to improve ATC operations in the Corridor.

SAFETY PROGRAMS BUREAU

Mr. Coughlin. Under safety programs, you are requesting 23 staff years and $2,270,000 for this bureau. What was the most significant accomplishment of this bureau during the past year?

Mr. Kolstad. I would think that the heavy truck study, the passenger vessel study, and a small school bus study were the most significant.

Mr. Coughlin. You state that this bureau evaluates the safety effectiveness of federal transportation safety programs. Have you conducted any such evaluations during the past year or two? If so, what were your conclusions?

[The information follows:]

The Safety Board has completed the following safety studies during the past two years: passenger vessel safety; uninspected commercial fishing vessel safety; heavy truck safety; emergency medical service helicopter safety; railroad safety and the impact of alcohol/drug use; lap/shoulder belt use and safety; large and small schoolbus safety; and recreational boating safety and alcohol use.

The conclusions drawn from these studies are as follows:

Passenger Vessel Safety: This study highlighted the following conclusions to improve the safety of foreign flag passenger vessels operating from U.S. ports and embarking U.S. passengers: the need for increased safety oversight by the U.S. Coast Guard; the need for fire protection safety improvements; the need for improved shoreside fire contingency planning; the need for training and drill requirements; the need to reduce and eliminate language barriers; the need for accidents to be reported to the U.S. Coast Guard and increased investigation authority for the Coast Guard; the need for lifejackets at muster locations; the need for a mass casualty plan; the need to apply U.S. Coast Guard alcohol and drug rules to foreign flag passenger vessels.

Commercial Fishing Vessels: This study focused on the need for additional safety requirements for uninspected commercial fishing vessels including the need for inflatable float free liferafts, emergency position indicating radio beacons, exposure suits, fire and bilge alarms, operable emergency radios and other equipment. Additionally, the need for a licensed master and training requirements for masters and crew commensurate with their responsibilities on the vessels. Further, the Safety Board concluded that stability requirements are needed for such vessels as well as a means to inform the master of the limitations of the vessel if stability characteristics change because of added equipment or fish products.

Alcohol and Drug Use and Its Impact on Railroad Safety: This study concluded that a number of actions should be taken to improve railroad safety by strengthening the Federal Railroad Administration's alcohol and drug rule. The suggested needed improvements included increased supervisory controls, improved supervisory training, improved employee training, elimination of long sample collection delays, work/rest scheduling improvements, expansion of the rule to include all railroad employees in safety sensitive positions, mandatory testing for cause, improved employee assistance programs, and use of a Federal medical certificate.

Alcohol and Marine Safety: The Safety Board completed a followup review on the progress of laws on alcohol use in recreational boating. The study concluded that improvements are needed in commercial and recreational boating laws and regulations to effectively deal with alcohol and drug abuse on the Nation's waterways. The emphasis of this study was to obtain State boating-under-the-influence laws. The Safety Board continues to concentrate its efforts on obtaining laws in the remaining 16 jurisdictions that have not implemented the Board's recommendations.

Emergency Medical Service (EMS) Helicopter Safety: This study explored the rapidly growing commercial emergency medical services helicopter industry and its operations. The Safety Board concluded that additional training was required for EMS helicopter pilots on poor weather operations; improvements were needed in the interior of EMS helicopters so that medical equipment did not jeopardize the safety of the helicopter; a requirement for shoulder harnesses; the need for EMS helicopter crews to wear protective clothing; and the need for better guidance and program management by helicopter operators and hospitals for EMS operations.

Heavy Truck Study: The Safety Board's heavy truck study into fatigue, alcohol, drug use and other safety issues led to the following conclusions not limited to: the need to establish a national truck database to provide information on fatal accidents and truck operations; the establishment of a program to standardize post-accident testing; improvements in pre-employment screening; requirements for automatic devices to identify commercial drivers who exceed hours of service regulations; establishment of educational programs to address such topics as fatigue; and enactment of State legislation to establish 0.00 blood alcohol concentration as the acceptable blood alcohol concentration for commercial vehicle operators.

Lap/Shoulder Belt Safety Study: The Safety Board's study addressed the proper use of a lab/shoulder belt. In the Board's study it was found that a properly worn lap/shoulder belt provides excellent crash protection in a wide variety of crash configurations and crash severities. The Board concluded that all passenger car occupants should wear lap/shoulder belts in prefeence to lap only belts. The Safety Board issued recommendations to the National Highway Traffic Administration and car manufacturers which ultimately will result in lap/shoulder belts being available at all seating positions of passenger vehicles.

Large Schoolbus Study: In the Safety Board's study on large schoolbuses an examination of Federal schoolbus standards instituted in 1977 were reviewed to document how well the standards were working and whether additional changes were needed, such as lap belts for passengers. Overall, the Safety Board found that large modern schoolbuses provide excellent crash protection for passengers. The Board, however, issued recommendations for further refinement of the design of schoolbuses. The Safety Board concluded that the first priority for improving the safety of schoolbus passengers would be the rapid retirement of prestandard schoolbuses, followed by expenditure of funds toward accident prevention in the form of improved driver training and equipment to reduce the number of student fatalities occurring during the loading and unloading of large schoolbuses.

Small Schoolbus Study: The Safety Board found that occupants of the small schoolbuses built to Federal schoolbus standards generally fared well in the accidents investigated. Injuries, when sustained, were generally minor and were primarily to the face, head, or lower limbs. Unrestrained and lapbelted passengers showed similar patterns of minor injuries, and the seating position, more than restraint status, appeared to influence the severity of injuries. The recommendations issued from this study focused on the following safety concerns: the need for design of restraining barriers in small schoolbuses; the need to look at the feasibility of providing lap/shoulder belts or other restraints with upper torso support for passengers; the need to eliminate deficiencies in roof and joint strength; lack of Federal performance standards for schoolbuses windshield retention; the need for improved design of the boarding door controls in certain small schoolbuses; and the need to correct inproper installation of lapbelts and other restraints and to use restraints correctly.

RECOMMENDATION FOLLOW-UP

Mr. Coughlin. In the past, we have discussed your accident recommendation follow-up efforts. What progress has been made in this area, and have you been able to increase the number of recommendation close outs?

Mr. Kolstad. No, sir, we have not been able to increase that percentage, but with additional resources this year, I am planning that we will.

RULEMAKING COMMENTS

Mr. **Coughlin**. Would you provide for the record a listing of the significant modifications to proposed safety rules that have been made as a result of your comments in fiscal years 1989 and 1990 to date, similar to the information contained on page 155 of last year's hearing record?

[The information follows:]

Agency/Docket/ Number	Subject	NTSB Comment and Agency Response
FRA Section 9 RSIA	Automatic train control	The Safety Board recommended improved pre-trip procedures to insure testing. The FRA issued a rule to: Require as may be necessary, pre-trip certification of automatic train control, train stop, or cab signal tests. FRA amended rule, October 5, 1988. NTSB asked FRA to require ATC and advanced control systems on each passenger and hazardous materials rail corridor. FRA issued rule to require ATC in the northeast rail corridor.
FRA Section 9 RSIA 85-1	Tampering	NTSB found safety devices defeated and asked the FRA to prohibit tampering. The FRA issued rules to prohibit willful tampering with certain safety devices. Final rule published February 3, 1989.
FRA Section 10 RSIA LI-7	Event Recorders	NTSB asked FRA to require event recorders. ANPRM published November 23, 1988; hearing Jan. 10, 1989. FRA adopted Board comment and published a rule requiring event recorders on selected locomotive units.
RSPA HM 183	Cargo tanks	Another improvement occurred as a result of Board comment when on June 12, 1989, DOT issued improved requirements for the testing, inspection, and maintenance of cargo tanks and for the first time, established qualifications for persons who perform this work.
RSPA HM 126C	Emergency response	On June 22, 1989, the DOT issued improved requirements on emergency response communication capabilities. Among other improvements, the Board's comments led to the inclusion of shipping papers that now are required to contain more complete information on the hazardous materials being transported so that emergency responders will more easily be able to identify the specific chemical materials, the constituents of waste materials, and materials that are toxic. Also, shipping papers must contain a telephone number that will provide 24-hour per day telephonic access to the shipper and/or persons knowledgeable of the hazards of the materials being transported. The Boards comments led to those changes.

RULEMAKING COMMENTS

Mr. COUGHLIN. Would you also update the listing of rulemaking comments filed by the Board similar to the listing that appears on pages 157 through 164 of last year's hearing record?

[The information follows:]

AVIATION

Reference Number	Subject	The Board
FAA-88-NM-160-AD	Boeing Model 737 Series Airplanes	(1/4/89) Supported implementation of proposal designed to decrease the probability an accident caused by skin separation along a lap joint or crease. Supported modification schedule without increases in modification times.
FAA-88-CE-38-AD	Certain small airplanes; Beech, et.al.	(3/17/89) Noted that proposal to require placards that identify whether aircraft are approved for flight in icing conditions goes beyond intent of Safety Board recommendations. Recommended that temperature/moisture criteria be deleted from proposed placards.
FAA-TSO-C116	Crewmember Protective Breathing Equipment	(3/30/89) Expressed its support for requirement that crewmembers be provided with protective breathing equipment that meets minimum standards for use in locating and fighting inflight fires.
FAA-25821	Exit Row Seating	(6/14/89) Supported proposed rule regarding seating of passengers in exit row seats. Noted need to clarify which rows provide most direct access tp an exit.
FAA-25804	Advanced Qualification Program	(6/27/89) Expressed support for regulations addressing cockpit resource management, improved air carrier pilot training, and flight crew coordination. Cited several aspects of the proposed advanced qualification program that warrant additional attention and consideration.
AA-25774	Airplane Cabin Fire Protection	(7/20/89) Agreed with content of proposed rule. Urged that certain proposed requirements be imposed on all newly manufactured and in-service airplanes within 6 months of the date that rule becomes effective.

Reference Number	Subject	The Board
FAA-25874	Flight Attendant Requirements	(7/21/89) Agreed with proposed clarifications regarding the number of flight attendants required for boarding, deplaning and enroute stages of flight. Expressed belief that proposed rule also should address several other topics related to flight attendant training.
FAA	National Aviation Safety Priorities	(8/11/89) Offered comments on both commercial air transportation and general aviation based on the Safety Board's U.S. civil aviation accident data, safety recommendations and prior accident investigations. Identified top priorities and other needed improvements in aviation safety.
FAA-25905	Pilots Convicted of Alcohol or Drug-Related Motor Vehicle Offenses or Subject to State Motor Vehicle Administrative Procedures	(9/5/89) Expressed view that proposed rule would fulfill prior Safety Board recommendation and that proposed rule would be an important element in the nation's drive toward a drug free transportation system. Supported intention of FAA to treat deferred adjudication cases as a judgment of conviction in determining whether sufficient cause exists for FAA to proceed against individual.
FAA-19110	Airborne Low-Altitude Windshear Equipment and Training Requirements	(9/29/89) Expressed serious concerns regarding proposals to: remove the requirement that windshear flight guidance be installed on older aircraft; allow for an extended compliance period; and provide for acceptance of alternative airplane equipment.
FAA-25890	Installation of Crashworthy Fuselage Fuel Tanks and Fuel Tanks and Fuel Lines	(11/29/89) Urged FAA to move expeditiously in rulemaking to improve crashworthiness of fuel systems on small airplanes and rotorcraft. Also supported early issuance of a rule addressing new standards for transport category aircraft.
FAA-89-NM-148	Boeing Model 747 Series Airplanes	(12/29/89) Supported proposal regarding cargo door warning systems, and agreed with modification schedule.

HIGHWAY

Reference Number	Subject	The Board
NHTSA-87-08	Federal Motor Vehicle Safety Standards; Occupant Crash Protection	(2/3/89) Expressed support for proposed rule to require lap/shoulder safety belts in the rear seats of automobiles. Urged that NHTSA develop an analysis of the possibility of requiring rear center seat lap/shoulder belts. Urged development of crash test criteria for belt systems with tension-relieving devices. Urged NHTSA to change its position with respect to the routing of shoulder belts that would pass over a child's neck.
NPS	Vehicles and Traffic Safety	(2/22/89) Supported requirement that front seat occupants of motor vehicles operated within the National Park System use the available seat belts. Expressed disappointment that Park Service plans to enforce regulation through contacts initiated as a result of another violation, and urged that the Park Service adopt an active, primary enforcement policy.
NHTSA-88-22	Flammability of Interior Materials	(2/23/89) Responded to a variety of questions regarding fires on school buses. Provided recommendations regarding ways to reduce flammability of school bus interiors, and minimum flammability testing requirements based on prior accident investigations.
NHTSA-88-21	Bus Window Retention and Release	(2/23/89) Responded to a variety of questions regarding emergency evacuation from school buses based on its study of the crashworthiness of large buses.

Reference Number	Subject	The Board
FHWA-MC-88-15	Private Carriage of Passengers	(7/10/89) Agreed that Federal Motor Carrier Safety Regulations should apply to private motor carriers, and that on site safety reviews should be by either State or Federal safety investigators. Believes that Commercial Driver License testing and licensing requirements appear to be adequate for intermittent drivers. Strongly supported subjecting all private carriers to the accident notification and reporting criteria.
NHTSA-89-04	Bus fuel system integrity	(7/11/89) Expressed belief that Federal fuel system requirements should be extended to include all buses, regardless of size or use. Expressed belief that testing the integrity of the front axle and suspension also is important. Urged additional improvements to fuel systems to prevent fires in severe accidents such as the Carrollton, Kentucky church bus accident.
FHWA-MC-89-9	Minimum Uniform Standards for a Biometric Identification System to Ensure Identification of Operators of Commercial Motor Vehicles.	(7/14/89) Noted its longstanding support for a single driver's license that permanently links a driver to his or her driving record, and that use of a biometric identifier is essential to this principle. Urged that a biometric identification system be made mandatory for all States.

RAILROAD

Reference Number	Subject	The Board
FRA-LI-7	Event Recorders	(3/13/89) Strongly supported actions to upgrade and mandate event recorders on locomotives within the FRA's jurisdiction. Stressed the importance of event recorders in recent accident investigations. Expressed view that Congress intended for FRA to mandate train event recorders. Responded to a variety of specific questions regarding event recorders.

Reference Number	Subject	The Board
FRA-RSOR-6	Alcohol/Drug Regulations Proposed Amendments	(10/30/89) Expressed view that proposal eliminates some requirements to collect specimens which complicates an employer's decisionmaking process regarding drug testing. Offered comments regarding specific portions of the proposed rule, generally urging that scope of testing be expanded. Urged that no positive blood alcohol level be allowed.

MARINE

Reference Number	Subject	The Board
USCG-CGD-88-079	Commercial Fishing Industry Vessel Regulations	(3/14/89) Supported the rulemaking effort since it addresses numerous safety issues that have been the subject of Safety Board recommendations. Urged that minimum safety equipment regulations be expanded to include a greater number of vessels. Urged prompt implementation of requirements for immersion suits for all crewmembers.
USCG-CGD-85-080	Small Passenger Vessel Inspection and Certification	(8/4/89) Expressed belief that proposed recommendations will increase the safety of small vessels significantly, but noted that there are other concerns which have not been adequately addressed. Offered numerous comments regarding specific provisions of the proposed rule.
USCG-CGD-84-069	Lifesaving Equipment	(11/15/89) Noted that many of Board's concerns regarding lifesaving equipment are addressed by this proposal. Offered comments regarding fully enclosed life boats, limitation on grandfathering of older vessels, EPIRB requirements, immersion suit location requirements passenger safety drills, and numerous other issues.

Reference Number	Subject	The Board
USCG-CGD-82-004 and 86-074	Offshore Supply Vessels Including Liftboats	(12/14/89) Noted that although many of the Safety Board's concerns had been addressed, there were others that had not been adequately addressed. Offered comments regarding applicability, equipment requirements, limitations on numbers of personnel per lifeboat, and other technical elements of the proposed rule.

HAZARDOUS MATERIALS

Reference Number	Subject	The Board
RSPA-HM-142A	Etiologic Agents	(1/19/89) Supported adoption of proposal to make United States requirements consistent with the pertinent provisions of the U.N. Code. Urged that additional rulemaking proposals be consolidated into a single package to assure their compatibility with one another.
RSPA-HM-181	Classification of Gases Which are Toxic by Inhalation	(3/17/89) Expressed support for proposals to modify the hazardous materials classification system to warn the public and emergency response personnel of the hazards presented by anhydrous ammonia in the transportation system. Urged that proposed classification of "poisonous gas" be adopted.

PIPELINE

Reference Number	Subject	The Board
RSPA-PS-107	Determining the Extent of Corrosion on Gas Pipelines	(10/2/89) Urged that final rule clarify that the entire circumference of a pipe should be exposed when an operator is examining the pipe for corrosion.

MULTIMODAL

Reference Number	Subject	The Board
OST	Formulation of a National Transportation Policy.	(9/6/89) Supported initiative to formulate a national transportation policy. Urged that safety be a prime consideration in all deliberations, and offered specific comments regarding important concerns in each mode of transportation.

BOEING 767

Mr. **Coughlin**. Last year, it was indicated that in your July 1988 comments to FAA (FAA-NM-30) on the Boeing 767 aircraft, you expressed concern that the proposed cabin partition would adversely affect safety. What action did FAA take on your comments?

[The information follows:]

The FAA approved the modification without regard to our comments.

RAILROAD WHEEL TEST PROGRAM

Mr. **Coughlin**. It was also indicated last year that in March 1988, you urged the FRA to reconsider its proposal regarding a wheel test program. To what extent, if at all, did FRA modify its proposal as a result of your comments?

Dr. **Loeb**. Mr. Coughlin, it's unclear to me right now to the extent that they have modified it. However, they have gone ahead. We asked them not to implement this program to issue a waiver to permit wheels to be kept in service even though they may technically violate the rules because the railroads had indicated they were discarding a large number of wheels that still had useful life.

According to the AAR, they began a wheel test program this year. However, according to the FRA it has not granted to the AAR the waiver needed to test the program. Therefore, it's possible that the FRA has considered our suggestions.

BUREAU OF SAFETY PROGRAMS

Mr. **Coughlin**. Would you provide some specific workload data for this bureau such as safety studies, rulemaking comments, recommendation follow-up actions, etc. for fiscal years 1989, 1990 and 1991?

[The information follows:]

The Bureau of Safety Programs provides the following workload data for Fiscal Years 1989, 1990, 1991.

Safety studies:	
1989 completed	9
1990:	
completed through March 5, 1990	3
projected by September 30, 1990	8
1991 projected by September 30, 1991	10
Rulemaking Comments	
1989	26
1990: completed through Mar. 5, 1990	8
1990: projected by Sept. 30, 1990	24
1991: projected by Sept. 30, 1991	25

Note: Rulemaking projections are based on past historical response patterns and actions by other federal agencies.

Recommendation Follow-up Actions	
1989 total all modes	691
Aviation	271
Highway	194
Marine	94
Intermodal	3
Pipeline	37
Railroad	92
1990 completed by end of February	285
Aviation	105
Highway	126
Marine	30

Intermodal	0
Pipeline	5
Railroad	19
1990 projected completions by end of September	635
1991 projected actions	735

BUREAU OF ADMINISTRATION

Mr. COUGHLIN. Turn to the Bureau of Administration. You are requesting 30 staff years and $1,770,000 for this bureau. Will you indicate how your personnel will be divided among the various offices in this bureau in fiscal year 1991?

[The information follows:]

Personnel for the Bureau of Administration will be divided as follows in fiscal year 1991:

Program area	*Positions*
Office of the Director	4
Comptroller Division	8
Personnel and Training Division	5
Operations and Facilities Division	9
Information Management Division	4
Total	30

FINANCIAL REVIEWS

Mr. COUGHLIN. Under financial management, what program evaluations and financial reviews have you conducted during the past year?

Mr. KOLSTAD. I'm going to defer to our director, Mr. Levins.

Mr. LEVINS. The financial audits in the past year in the payroll, procurement, and administrative payments functions. The program evaluation conducted was a revised Board-wide word processing system.

TRAINING PROGRAM

Mr. COUGHLIN. What are the major elements of your current year's training program and what are you planning for fiscal year 1991?

Mr. LEVINS. The major elements of this year's training program are accident investigation school which provided introductory training for new employees, advanced concepts training for our current employees, and the second area is training at manufacturers such as Boeing, McDonnell Douglas, Air Bus. The third component is individualized training courses in specialty areas. The fourth concept would be really group training for areas such as word processing and technical writing.

With respect to 1991, we plan to continue these same four, training in these four major areas, as well as to provide expanded training in state of the art technology areas such as glass cockpits and so forth.

TRAINING COURSES

Mr. COUGHLIN. For fiscal year 1989, would you provide for the record a list of the training courses attended by your technical (investigative) staff, including attendees position, course and time?

[The information follows:]

TRAINING ATTENDED BY TECHNICAL STAFF -- FY 1989

Attendee's Title/Training Course	Number	Training Vendor/Location	Hours
Air Safety Investigator			
ATC for Tomorrow's Technology	1	FAA, Oklahoma City, OK.	24
Aviation Accident Investigation	1	NTSB Accident Invest School, Ok City, Ok.	80
Cabin Safety	10	SC Safety Institute, Long Beach, CA.	32
Cockpit Voice Recorder Training	1	Fairchild Weston Systems, Inc.,Sarasota, FLA	40
Composites in Aerospace Industry	2	Soc. of Manufacturing Eng., Dearborn, MI	32
Crash Survival Investigation (Basic)	1	The Int'l Cntr for Safety Educ., Tempe, AZ	80
Failure Analysis of Composites	1	ASM International, Los Angeles, CA.	32
Fundamentals of UNIX	1	AT&T, Atlanta, GA.	36
How To Manage Multiple Priorities	4	Natl. Career Workshops, Oak Brook, IL.	8
NTSB Orientation	6	NTSB Headquarters, Wash., D.C.	40
Prevent, Invest. & Litigate Disasters	1	Air Safety Law & Technology, Wash., D.C.	16
Single Engine Maintenance School	1	Piper Aircraft Corp., Vero Beach, FL.	36
Time Management	1	The Franklin Institute, Kansas City, MO.	4
Rotorcraft Safety & Acc. Invest.	1	TSI, Oklahoma City, Ok.	64
Fire & Explosion School	3	NTSB Accident Invest School, Ok City, Ok.	58
Perfecting the Written Word	1	Univ. of Miami, Coral Gables, FL.	8
Basic Q-Office	1	Digital Corp., Reston, VA.	16
Railroad Investigator			
Caught In the Middle	4	USDA, Washington, D.C.	16
How To Manage Multiple Priorities	4	Natl. Career Workshops, Oak Brook, IL.	8
Mass Transit Rail System Safety	1	DOT, Atlanta, GA.	40
Pre-Retirement Planning	1	OPM, Denver, CO.	16
Regional Rail Safety Study	4	TSI, Oklahoma City, Ok.	32
Fire & Explosion School	1	NTSB Accident Invest School, Ok City, Ok.	58
Highway Investigator			
Accident Reconstruction	2	Northwestern Univ., Evanston, IL.	80
Comprehensive Bridge Inspection	1	new Mexico St. Univ., Las Cruces, NM.	80
Highway Bridges	2	GW University, Wash., D.C.	24
How To Manage Multiple Priorities	2	Natl. Career Workshops, Oak Brook, IL.	8
Project Management	1	Fred Pryor Seminars, Tacoma, WA.	8
Work Zone Traffic Contrl Training	14	TSI, Oklahoma City, Ok.	40
Worksite Traffic Supv. Training	1	Amer. Safty Serv. Assoc., Albuquerque, NM	20
Hazardous Materials II Response Team	1	Univ. of IL., Champaign, IL.	40
Project Management	1	USDA, Washington, D.C.	24

Attendee's Title/Training Course	Number	Training Vendor/Location	Hours
Technical Supervisor			
Development Training	1	Univ. of LaVerne, Fountain Valley, CA.	18
EEO & Affirmative Action	1	IAGE de Seattle, Seattle, WA.	8
Highway Work Zone Training	1	NTSB, Oklahoma City, OK.	40
How To Manage Multiple Priorities	1	Natl. Career Workshops, Oak Brook, IL.	8
Modern Supervisory Concepts & Tech.	1	OPM, Dallas, TX.	24
Report Writing for Managers	4	Management Concepts, Wash., D.C.	24
Regional Rail Safety Study	3	TSI, Oklahoma City, Ok.	32
First-Line Supv. Seminar	1	Center for Applied Mngmnt, USDA, Wash., D.C.	8
Understanding & Managing Human Behavior	1	OPM, Dearborn, CH.	24
Managing Problem Employees	1	FPMI, Kansas City, Kansas	8
How To Deal With Difficult People	1	Career Track, Ft. Worth, TX.	8
Engineer			
At-Scene Traffic Accident Investigation	1	Inst. of Police Tech. & Mgmt., Jacksonville,	96
Marine Accident Investigation	2	U.S. Coast Guard, Yorktown, VA.	80
MD-80 Familiarization	1	McDonnell Douglas Corp., Long Beach, CA.	40
Specialized Training for DFDR	1	Fairchild Industries, Sarasota, FL.	40
Tractor Trailer Training	1	Liberty Mutual Research Cntr, Hopkinton, MA.	40
Fire & Explosion School	2	NTSB Accident Invest School, Ok City, Ok.	40
Accident Investigation	1	NTSB Accident Invest School, Ok City, Ok.	80
Cross Modal Investigator			
Aerospace Pathology	6	Armed Forces Institute, Wash., D.C.	32
Analysis of Surveying Measurements	1	ACSM-ASPRS Education Program, Richmond, VA.	16
Aviation Accident Investiation	1	NTSB, Oklahoma City, OK.	80
Marine Accident Investigation	2	U.S. Coast Guard, Yorktown, VA.	80
Traffic Accident Reconstruction	1	Inst. of Police Tech. & Mgmnt, Jackson., FLA	80
Fire & Explosion School	2	NTSB Accident Invest School, Ok City, Ok.	40
Explosives & Drugs in Aircraft	1	Quintilian Institute, Arlington, VA.	18
Private Pilot's Ground School	1	FAA Flying Club, Wash., D.C.	48
Metallurgist			
Aviation Accident Investiation	1	NTSB, Oklahoma City, OK.	80

Attendee's Title/Training Course	Number	Training Vendor/Location	Hours
Marine Accident Investigator			
Marine Accident Investigation	2	U.S. Coast Guard, Yorktown, VA.	80
Hazardous Materials Investigator			
Caught In the Middle	4	USDA, Washington, D.C.	16
Aviation Accident Investiation	1	NTSB, Oklahoma City, OK.	80
Human Performance Investigator			
Aviation Accident Investigation	2	NTSB Accident Invest. School, OK City, OK.	80
Trans. Safety Specialist			
How to Make Presentations That Win	1	Career Track, Washington, D.C.	8
Meteorologist			
Aviation Weather Systems	1	American Meteorological Soc., Anaheim, GA.	40

*HS -- Home Study Course

CONFERENCES AND SEMINARS

Mr. COUGHLIN. Would you provide similar information for conferences and seminars?

[The information follows:]

Position	Conference title	Number of days
Senior Accident Investigator	Airport Conference	3
Accident Investigator	6th Cabin Safety	5
Aerospace Engineer	ISASI Conference	5
Aerospace Engineer	FAA Intl/Aging Acft	3
Air Safety Investigator (Ops)	Intl Arpt Facilities	2
Air Safety Investigator (Ops)	Weather Radar Seminar	1
Air Safety Investigator (Ops)	Air Transport Assoc. Airline Ops Forum	2
Supervisor Trnsp. Specialist	FAA NAS Plan Users	2
Meteorologist	Intl. Aviation Weather Systems	6
Senior Meteorologist	ATA Weather Committee Meeting	5
Senior Meteorologist	FAA Windshear	3
Air Safety Investigator (ATC)	World Tech '89 Expo	1
Air Safety Investigator (ATC)	ATC Tomorrow's Tech	3
Highway Engineer (2)	Transp. Research Brd	2
Highway Engineer	AASHTO Subcom., Struct	3
Highway Engineer	Inst. Bridge Integrity and Safety	2
Transportation Safety Specialist	SAE Govt/Industry Mtg	1
Transportation Safety Specialist	Heavy Duty Mfgs. Assoc	1
Human Performance Investigator	Aviation Accident Investigation Lectures	3
Supervisor Engineer	NTSB Senior Mgmt. Conf	3
Electrical Engineer	Wing 436MAW Flying Safety Flight Recorders	1
Senior Aerospace Engineer	Amer. Inst. Aeronautics and Astronautics	1
Air Safety Investigator	Intl. Soc. ASI Seminar	10
Aerospace Engineer	Eur Org Civil Av Electr	3
Aerospace Engineer	Aircraft Integrated Monitoring Systems	3
Natural Resource Specialist (Chemist)	Drugs in Workplace	3
Deputy Director	SAE Aerotech 89	4
Deputy Director	Windshear Conference	3

ADMINISTRATIVE LAW JUDGES

Mr. COUGHLIN. Under Administrative Law Judges, you are requesting 12 staff years for this office, which is two more than the current fiscal year. On page 10, you indicate that your present backlog is about 1,000 cases. How does that compare with last year and two years ago?

Mr. KOLSTAD. Mr. Coughlin, it's higher. It was 788 and 889. I have added two Administrative Law Judges on a part time basis in the summer, and I have added more support personnel. I might point out that we're closing more cases than we ever closed before.

We closed 900 in 1988 and 1,100 in 1989. The problem that we face here is that we're simply getting more cases than we're able to handle.

Mr. COUGHLIN. License suspensions?

Mr. KOLSTAD. That's correct.

Mr. COUGHLIN. You indicate that final disposition of a case could take as long as 20 months. Why would it take that long if, as you indicate on page 12, you closed over 1,100 cases in fiscal year 1989?

Mr. **Kolstad**. The 20 months refers to the full process if the result of the Administrative Law Judge is appealed to the full Board.

Mr. **Coughlin**. How long does that take?

Mr. **Kolstad**. That's the 20 month figure.

Mr. **Coughlin**. How long does the appeal take before the full Board?

Mr. **Kolstad**. Once it gets to the Board, we handle it within two weeks. It's put on the docket and it's handled.

Mr. **Miller**. I should also add that there is a backlog in our General Counsel's office of these appeals from the Administrative Law Judges. That's the reason we're asking for two additional attorneys there. So there are delays at both staff levels, both at the Administrative Law Judge level for the initial decision and at the General Counsel's level for the preparation of the documents for Board consideration. Thus the compounding of the delay.

Mr. **Coughlin**. Would you provide for the record a table showing the disposition of appeals to the full Safety Board?

[The information follows:]

DISPOSITION OF CASES APPEALED TO THE FULL BOARD

Cases	1984	1985	1986	1987	1988	1989	1990 [1]
Appealed	123	135	232	203	176	251	81
Affirmed	53	48	72	87	42	50	31
Dismissed	39	41	43	70	47	94	30
Modified	8	9	20	17	20	15	6
Remanded	2	3	5	3	2	2	3
Reversed	9	10	32	6	11	11	0

[1] Oct 1, 1989 through Feb. 28, 1990.

DISPOSITION OF THE FEDERAL AVIATION ADMINISTRATION'S ORDERS BY THE SAFETY BOARD ADMINISTRATIVE JUDGES

Fiscal year	Affirmed	Modified	Reversed
1984	128	70	23
1985	112	73	28
1986	97	51	15
1987	45	31	32
1988	145	99	36
1989	184	149	76
1990 [1]	69	64	27

[1] Oct. 1, 1989 through Feb. 28, 1990.

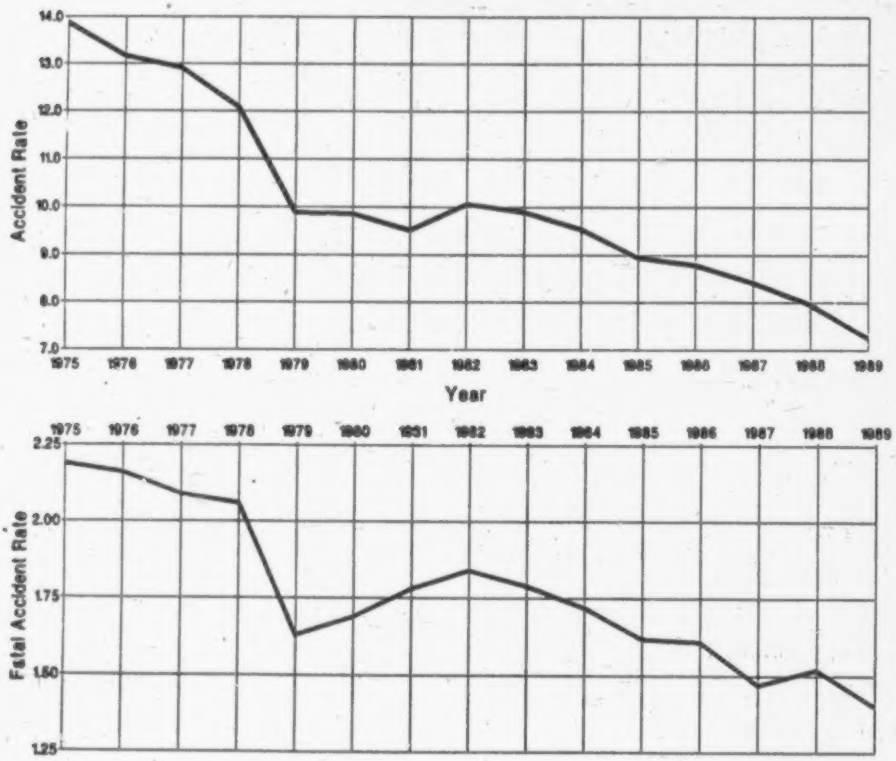
FAA ACCIDENT DELEGATION

Mr. **Coughlin**. On page 84, you indicate that in 1982 you significantly reduced the number of accidents delegated to FAA. Do you have any data that indicates whether this has improved aviation safety—for example, how does the aviation accident trend for the past eight years compare with the trend for the eight years prior to 1982?

[The information follows:]

We believe that any effect on accident rates of the reduction in delegated investigations is much smaller than the random component in those rates. As the accompanying graphs clearly show, both the overall and fatal accident rates for General Aviation have been decreasing since at least 1975. The rate of decrease appears to be no greater after 1982 than before. We expect that the safety benefit of conducting most of our own investigations (in conjunction with the enhanced data collection and storage systems also initiated in 1982) will result from the ability of our staff and other parties to conduct safety studies.

Figure 1 - ACCIDENTS PER 100,000 HOURS FLOWN
ALL OPERATIONS



Mr. **Coughlin**. Thank you, gentlemen, that was excellent testimony. Thank you.

Mr. **Lehman**. Thank you, Mr. Coughlin.

I just wanted to refer back to the statement I made regarding literacy in trucking. The article stated that 50 percent in California failed the written exam, but after they started taking it more seriously the failure rate dropped to 20 percent.

However, it did say that the department there never refused to issue a license only because someone could not pass the written test. Instead, the department extends the old license and allows the trucker to keep trying. For people who cannot read, oral tests are given and study guides on audio cassette tapes are available.

I didn't want to malign truck drivers, and I do want to have the record straightened out on that.

Thank you for being here. It was a good hearing.

WEDNESDAY, APRIL 18, 1990.

FEDERAL AVIATION ADMINISTRATION

WITNESSES

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ALLEN LI, ASSISTANT DIRECTOR
ROBERT SHIDELER, ASSISTANT DIRECTOR
ROBERT WURSTER, SENIOR EVALUATOR

GAO INFORMATION MANAGEMENT AND TECHNOLOGY DIVISION
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DALE E. McDANIEL, DEPUTY ASSISTANT ADMINISTRATOR FOR POLICY, PLANNING, AND INTERNATIONAL AVIATION
CHARLES HUETTNER, DEPUTY ASSISTANT ADMINISTRATOR FOR AVIATION SAFETY
WILLIAM POLLARD, ASSOCIATE ADMINISTRATOR FOR AIR TRAFFIC
BROOKS GOLDMAN, ASSOCIATE ADMINISTRATOR FOR ADMINISTRATION
MONTE BELGER, ASSOCIATE ADMINISTRATOR FOR AVIATION STANDARDS
ARNOLD AQUILANDO, ASSOCIATE ADMINISTRATOR FOR AIRWAY FACILITIES
HERBERT McLURE, ASSOCIATE ADMINISTRATOR FOR HUMAN RESOURCE MANAGEMENT
ANTHONY BRODERICK, ASSOCIATE ADMINISTRATOR FOR REGULATION AND CERTIFICATION
MARTIN POZESKY, ASSOCIATE ADMINISTRATOR FOR SYSTEM ENGINEERING AND DEVELOPMENT

GAO INTRODUCTION

Mr. LEHMAN. The Subcommittee will come to order. This morning the Subcommittee will receive testimony on the fiscal year 1991 budget request of the Federal Aviation Administration, FAA.

At the request of the Committee, the General Accounting Office has continued its review of a number of FAA programs during the past year. This morning we will receive testimony from GAO officials on the status of the National Airspace System Plan, and also selected ADP projects, and operations issues.

We are pleased to have with us this morning Mr. Kenneth M. Mead, Director of Transportation Issues in the Resources, Community and Economic Development Division; and Ms. JayEtta Hecker, Director of Resources, Community, and Economic Development Information Systems for the Information Management Technology

Division. We would ask each of you to summarize your findings to date at this time. We will place your complete statements into the record and then we will proceed with a few questions. Welcome.

Mr. MEAD. Thank you, Mr. Chairman. And Admiral Busey, and his senior staff. I would like to introduce my colleagues at the table if I might. To my immediate right is JayEtta Hecker. She runs a group in GAO that is responsible for looking very intensely at particular information management systems.

On my left is Allen Li, and he directs our airport and airspace capacity modernization work. Bob Shideler is to his left, and he oversees our work force and operations work. Bob Wurster is from Allen's staff. To JayEtta's right is Joel Willemssen, Rona Stillman, who is GAO's chief scientist, and John Finedore.

FAA BUDGET REQUEST

Mr. Chairman, we appreciate the opportunity to testify on FAA's $8.3 billion 1991 budget request, which of course is up from the fiscal year 1990 level of $7.1 billion and the fiscal year 1989 level of $6.4 billion.

Our testimony today will focus on modernization of the air traffic system and operations, which together account for 80 percent of the FAA request. We will make three major points. First, producing new air traffic control systems continues to take longer than expected. Most major systems have experienced another round of delays since we reported to you last year. As a consequence, benefits of long term projects are pushed further out into the future. Also, interim projects are now required to upgrade existing systems until the new systems are brought on line.

Second, FAA has not yet identified the human resources that it needs to bring modernization projects on line at field locations. Insufficient staff to install, test, and be trained on the new equipment once it is delivered will cause further slippages.

Third, FAA will not meet this year's staffing goals for controllers, inspectors, and maintenance technicians, and the effect of staffing shortages is compounded due to significant shortfalls in the training area. This is now affecting the pace at which FAA can responsibly hire new staff.

NAS PLAN PROJECTS

Mr. Chairman, I would like to first turn to the modernization of the air traffic system. We issued a report to you today on the status of the various modernization projects and their cost. Delays persist as I indicated earlier. During the last year, eight of twelve of the major systems experienced an additional delay of 200 or more days. This is on top of the average two and a half year slippage that they had already experienced as we entered 1989.

Mr. LEHMAN. Are you talking about working days or calendar days?

Mr. MEAD. Calendar days.

The problem seems to stem, from among other factors, FAA's decisions to commit systems to production without having adequately tested prototypes. Those decisions though were made several years ago, and FAA now is dealing with the unpleasant effects of those decisions. FAA vendors are also experiencing a variety of technical problems in developing hardware and software. Later my colleague, Ms. Hecker, will discuss problems of this type associated with the AAS and the Mode S projects.

INTERIM SUPPORT PLAN

Delays in the NAS Plan projects have combined with increasing air traffic demand to require short term bridging type projects. One of them, the $430 million Interim Support Plan, is directed at resolving maintenance and capacity problems, particularly at terminal radar approach control facilities, until the longer term projects are completed.

Based on our ongoing work, we believe that FAA has no assurance that the Interim Support Plan will satisfy its interim equipment needs. Also most of the Interim Support Projects are themselves behind schedule, and more of these projects will almost certainly be proposed.

In this regard, FAA's systems engineering and integration contractor found that seven of the ten individual projects in the plan that it examined were not cost beneficial. FAA generally dismissed these findings and proceeded with the projects.

In light of the likelihood that there will be additional proposals for Interim Support Plan projects, we believe that situations like this ought to be avoided in the future. The dollars are not unlimited, and we expect a cost benefit justification for projects like these will become an increasingly important issue in the years ahead.

FACILITIES AND EQUIPMENT COSTS

Another point is that while about 32 percent of all NAS Plan projects are complete, they represent only 4 percent of the total NAS Plan costs. As you know, bills for the big ticket items are starting to come due. Due to the movement of original modernization projects to full production, the F&E budget request this year reached an all time high of about $2.5 billion. This will keep the F&E account at a range of some $2.5 to $3 billion for at least the next five years.

In addition, FAA is considering modifications to its 1983 plan to consolidate its air traffic control facilities. A different consolidation scheme could have very significant cost consequences possibly in the neighborhood of one billion dollars.

Mr. Chairman, I think that this year, FAA has an excellent opportunity to begin to provide you with some indicators of what incremental progress it is making in modernization. We come up here and we speak about delays, or cost increases, or some systems that have met their schedule and so forth, but they are not the best indicators.

CAPITAL INVESTMENT PLAN

And FAA acting on one of our recommendations, is developing a more comprehensive program that they are calling the Capital Investment Plan or CIP. That new effort will include the totality of the modernization effort: the NAS Plan, the new projects needed for added capacity, new requirements, and projects needed to sustain existing operations.

You may remember that in the past two years we have discussed how it is difficult to tell exactly what the modernization effort consists of, because some of it was in the NAS Plan and some was not. The CIP presents a good opportunity for FAA to reassess and make more meaningful its modernization goals and develop a measurement strategy so that it can report to you on its progress in meeting those goals.

We would suggest that these goals focus on the benefits the flying public will receive, not just whether a project is on schedule or not. Also, FAA needs to set relative project priorities on the basis of benefit-cost ratios, mission needs, and safety considerations.

ACQUISITION PROCESS

Also I want to point out that, to its credit, FAA has taken some encouraging steps to revamp its acquisition process. Admiral Busey has created a new Executive Director for Acquisition who will be tasked with performing independent program reviews and ensuring that independent operational testing of systems is conducted. These are steps we have been recommending for several years.

I would like to turn quickly our attention to a second point—which is bringing the new systems on line. Although requested to do so by this Subcommittee, FAA has not completed assessing its human resource needs to install new equipment, test it, make it operational, and train staff in its use.

Although FAA officials think that they will need considerably more staff to do all of these things, they are not sure how many, because their study is not yet complete. The good news is that continued delays in the modernization projects have saved FAA from having to face the consequences of not having enough people to effectively bring new systems on line. The bad news is that FAA may soon have the new equipment at its disposal, and that it either will not be installed or will go unused unless it decides how many people it needs and takes action to hire and train them.

Also, FAA is now developing a new information system to give regions reasonably reliable information on when it should be ready to accept delivery of new equipment and install it. The system is not complete and may not yet be complete for another six months. Continued use of the old system has had detrimental results, and I would like to give just one example.

A new landing system is now in storage at the Charlotte Airport because the site preparation work was not ready when the equipment was. Regional officials there delayed doing the site preparation for the landing system, because the information system said that the contractor was seventeen months behind schedule. But without telling the region, FAA got landing systems through another source, and sent them to the region. But the region was not ready to install it, and as a result the landing system will have to be stored at Charlotte for probably another five months.

OPERATIONS STAFF NEEDS

I would like to turn now to the hiring and training of the three work forces: controllers, inspectors, and maintenance technicians. FAA clearly is making progress in the hiring area, at least in the controller and inspector area, but shortages persist.

In January, FAA estimated that it would fall about 1900 short of its goal of 12,725 full performance level controllers, and that it would not meet the overall controller work force mandate. The 1991 inspector shortfall will be about 250 of the 3000 FAA says is needed. We are concerned about both of these estimates however and here is why.

The actual number of controllers that are needed cannot really be determined now, because after three years staffing standards are still being updated. It is important that those be completed. The shortage of inspectors also may be greater than forecasted. That is because there are major new inspection requirements like hands-on inspection of aging aircraft and surveillance of foreign aircraft repair stations.

The maintenance technician shortage is severe and it is destined to get worse. At the beginning of fiscal 1990, FAA was about 1500 short of the 10,000 technicians that it needed. This is a problem that we have been referring to for several years and it is now with us. The reason that FAA has not been hiring maintenance technicians was because they thought that they would need fewer of them as the new modernization systems came on line. Well, the sad story is that the systems did not come on line, the old systems are still there, and somebody has to maintain them.

Mr. LEHMAN. The new systems are sometimes more complicated and sometimes they take more maintenance.

Mr. MEAD. Well, they certainly are more complicated. And I think that the related problem that you are raising here is that the people who are trained to maintain the old systems are not trained to maintain the new systems.

There are two big problems that are facing FAA in coming to grips with the maintenance technician issue. A substantial percentage of that work force is at or very close to retirement age. And the second is that even if they were able to hire the 2300 people that they say that they need by 1994, they are likely to continue experiencing shortages of fully trained technicians for some time. This is because just like with the controllers, it takes from three to five years to train the new hires until they reach the full performance level.

The technician shortage is so severe that FAA is proposing to contract out $170 million worth of maintenance that it acknowledges would be better done by its own staff.

The Congress needs information from FAA on how well this contracting meets its needs and the impact that it has on FAA's own technician recruiting efforts. You will need that very soon.

Greatly complicating the staffing problems, Mr. Chairman, is that FAA is falling short in its training efforts. Specifically, FAA may not be able to hire all of the 300 inspectors that it intends to bring on board this year because it simply is unable to train all of them. Part of the problem is that the Academy in Oklahoma City does not have enough instructors.

The demand for training maintenance technicians will also outstrip the Academy's capacity in 1991 and 1992 when they are planning to hire about 900 new technicians. But the Academy can only accommodate about 640 new technicians each year.

FAA's training shortfall is compounded by available training seats going unused. An internal FAA study of training found that although there were about 28,000 training slots used in fiscal year 1989 that about 3500 funded training slots went unused.

FAA has acknowledged its training deficiencies. To address them, it established an Office of Training and Higher Education and developed a comprehensive $406 million six year training plan. But 30 of the 47 projects in this plan are already behind schedule, some by more than a year.

We think that the plan is off track because of funding complications due to competing priorities within FAA, and poor planning—trying to do too much with too little. This has caused the ripple effect of delays. For example, improvements in the maintenance technician curricula have not begun because FAA must first complete a study of the technician's job tasks that will be the basis of the training project. But the job task study is itself a year behind schedule.

NAS PLAN—CONSOLIDATION OF ATC FACILITIES

I would like to make one final note about FAA's management of its work forces: the consolidation of air traffic control terminal and route facilities. That is an emerging issue. Although it has been in the NAS Plan for some years, we now need to begin to think about what we are actually going to do. Admiral Busey, I think, will tell you later that FAA is revisiting exactly what the consolidation plan should be.

Looking back to the problems that we experienced with flight service stations, and I am sure that every member of the subcommittee can remember some of those problems. And we had difficulties consolidating them. And the problems that we had there will pale in comparison to the problems of trying to consolidate the enroute centers, and the TRACONs, and so forth.

Mr. LEHMAN. The flight service stations were mostly in small cities where it was a big factor. But these route centers are in large metropolitan areas where nobody will particularly miss them that much, will they?

Mr. MEAD. Well, the metropolitan area might not miss them that much, but they may not want to move. In any event FAA faces a major challenge in resolving the human factors issues associated with consolidation while maintaining high productivity and morale levels.

I would just like to close with a note about the points that I made in our statement. GAO's testimony is necessarily in the nature of pointing out improvements that an agency can make. And I think that is probably appropriate given that in aviation that our tolerance of risk is practically zero.

But I do not want that to obscure the performance of FAA in maintaining a safe aviation system. They have an extraordinary set of challenges over there. And for the vast majority of the recommendations that GAO has made over the years, we found that FAA has been quite receptive. That includes the new Administrator.

[The prepared statement of Kenneth Mead follows:]

United States General Accounting Office

GAO

Testimony

For Release
on Delivery
Expected at
10:00 a.m. EDT
Wednesday
April 18, 1990

Issues Related to FAA's Fiscal Year 1991 Budget Request

Statement of
Kenneth M. Mead
Director, Transportation Issues
Resources, Community, and Economic
Development Division

Before the
Subcommittee on Transportation
Committee on Appropriations
House of Representatives

Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify on the Federal Aviation Administration's (FAA) fiscal year 1991 budget request. FAA's budget continues to grow. Its request of almost $8.3 billion represents a 16 percent increase over the fiscal year 1990 appropriation. The two major components of the budget are the Operations account--which funds the ongoing operation and maintenance of the Air Traffic Control (ATC) system, and the Facilities and Equipment (F&E) account--which funds modernization of the ATC system. Together, Operations and F&E account for $6.6 billion, or 80 percent of the total fiscal year 1991 request.

Over the past few years, our testimonies and reports have alerted this Subcommittee of FAA's difficulties in both these areas. FAA's ATC modernization effort, whereby the agency is replacing its existing radars, computers, and communications systems, has experienced significant delays. At the same time, the cost of modernization has more than doubled. Initiatives to hire, retain, and train critical safety employees--controllers, inspectors and maintenance technicians--while encouraging, continue to fall short of expectations.

In light of continuing problems in both areas, our testimony will make three major points:

-- First, developing and installing new ATC systems continues to take longer than FAA expected. Most major systems have experienced another round of delays. Such delays have required the addition of interim projects to upgrade existing systems. Our work to date on the largest of these interim projects suggests that FAA did not properly plan and assess its needs before seeking funding from Congress.

-- Second, FAA has not yet identified the additional human resources necessary to implement ATC modernization projects at field locations. Insufficient staff at field locations to install, test, and be trained on the new equipment will cause further delays in realizing modernization benefits.

-- Third, FAA will not meet this year's staffing goals for controllers, inspectors, and maintenance technicians. It expects shortages of about 1,900 experienced controllers, 500 inspectors, and 1,500 maintenance technicians. In addition, FAA's training initiatives are falling behind schedule. FAA may have to curtail its planned hiring because of limited training capacity, further compounding shortages.

I will now provide an assessment of ATC modernization.

ATC MODERNIZATION PROBLEMS PERSIST

FAA experienced additional delays in key modernization projects during the past year. This was due mainly to a variety of technical problems vendors were having in developing hardware and software with the capability they promised. Delays heighten a need for additional short-term solutions like the Interim Support Plan to address projected system capacity shortfalls and equipment reliability problems. However, FAA must carefully scrutinize proposed short-term solutions to avoid selecting projects that are not cost beneficial.

Continuing Modernization Delays

Past delays of 1 to 4 years in modernizing the ATC system are well known. However, as we noted in our recently issued fact sheet to this Subcommittee, significant additional delays occurred this year.[1] In the space of about a year, 8 of 12 major projects experienced a delay of at least of 200 days. We believe that continued delays are the result of the acquisition problems we have pointed out in the past, such as inadequate operational testing before committing to production. FAA was allowing contractors to proceed without substantial evidence that the proposed system could meet its requirements. As a result, hardware and software systems could not perform as promised and modifications had to be made. Following my statement, my colleague, Ms. Hecker, from the Information Management and Technology Division, will comment in detail on problems experienced by FAA with two of the major ATC modernization projects: the Advanced Automation System and the Mode S project.

To its credit, FAA has recently taken some encouraging steps to revamp its acquisition process, which we believe will help minimize such problems in the future. The Administrator has created a new Executive Director for Acquisition who, among other duties, will be tasked with performing independent program reviews and ensuring that independent operational testing is conducted. We have recommended such independent testing and view the creation of this new organization as encouraging.[2] We plan to evaluate its effect on new acquisitions.

Facilities and Equipment Costs Continue to Rise

As modernization of the ATC system moves into the 1990s, FAA's F&E budget request has reached an all-time high of $2.5 billion this year, a 47 percent increase over the fiscal year 1990 appropriation. This large increase is due to (1) the movement of original National Airspace System (NAS) Plan projects into full production and (2) the addition of new modernization projects due to NAS Plan project delays and new requirements. The addition of these new projects will keep the F&E account at the $2.5 to $3.0 billion level for at least the next 5 years. Over that period, FAA believes it needs $13.5 billion to sustain the F&E program. In addition, FAA is currently analyzing whether its 1983 strategy to consolidate 188 terminal and 20 enroute facilities into 23 area control facilities is still operationally feasible. FAA has acknowledged that a revised consolidation plan could cost an additional $1 billion.

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[1] Air Traffic Control: Status of FAA's Effort to Modernize the System (GAO/RCED-90-146FS, Apr. 17, 1990).

[2] Air Traffic Control: FAA Needs to Implement an Effective Testing Program (GAO/IMTEC-89-62, Sept. 22, 1989).

Problems in Planning and Implementing The Interim Support Plan

Delays in the original NAS Plan projects--combined with increasing demand on the ATC system--have required new projects such as expansion of the Dallas/Ft. Worth and the Chicago terminal radar approach control (TRACON) facilities. At the request of this Subcommittee, we are reviewing one of the largest of these short-term projects: the Interim Support Plan, which FAA currently estimates at a total cost of $430 million. The Interim Support Plan is a conglomeration of projects directed primarily at resolving maintenance and capacity problems at TRACONs until longer term modernization activities--such as the Advanced Automation System--are completed.

Our work to date suggests that FAA did not properly plan and assess the Interim Support Plan before it sought funds for the project. The program was included in FAA's budget before the agency's normal review process was completed. Also, FAA's Systems Engineering and Integration Contractor found that 7 of the 10 individual projects in the program it examined were not cost-beneficial and another was cost-beneficial for only half of the proposed sites. The contractor also recommended that each project be assessed individually. We believe such an assessment would have verified that solutions were needed for specific equipment problems. Instead, FAA generally dismissed the contractor's concerns and proceeded with the project. Therefore, FAA has no assurance that the equipment being procured will address the most pressing problems at its TRACON facilities.

Furthermore, despite the urgency initially ascribed to the Interim Support Plan, implementation is behind schedule. In 1988, then-Administrator McArtor indicated that there were no more serious operational requirements than those covered by the Interim Support Plan. However, as of March 1990, most of the Interim Support Plan projects are behind schedule and only a small portion of the equipment has reached the field.

In addition, several FAA operations officials believe additional short-term projects will be necessary before the NAS Plan is completed. One example is the need for more controller work stations due to the expansion of the Chicago TRACON. The Interim Support Plan delays and the likelihood of additional short-term projects indicate that FAA should properly review new projects before funding is requested.

Increasing Reliance on Support Contractors

FAA's increasing reliance on support contractors is an emerging issue that requires the agency's attention. Following a review of the NAS Plan in 1982, the White House Science Council Panel recommended that FAA hire a prime contractor to formulate, design, and integrate all NAS Plan systems. In 1984, FAA hired a support contractor but did not completely follow the panel's recommendation. Unlike a prime contractor, Martin Marietta, as the Systems Engineering and Integration Contractor, is not responsible for either the initial system design or for directly controlling individual system vendors. Instead, it serves as FAA's technical adviser for implementing the NAS Plan. One of Martin Marietta's primary responsibilities is to ensure that the thousands of components being built will be capable of working together, a process called systems integration.

Recently, FAA awarded a $139 million contract to TRW Incorporated to assist with its automation effort, including help with the Advanced Automation System. Some of the types of tasks TRW will perform, such as testing and evaluation, parallel the tasks listed in Martin Marietta's contract.

Because of FAA's growing use of support contractors, we are concerned about how additional players will affect Martin Marietta's overall role in integrating all modernization projects. FAA officials told us that they are reviewing their use of support contractors. As part of this assessment, defining precise roles would help to avoid overlapping responsibilities and unnecessary costs. Furthermore, as we recently testified, developing in-house systems engineering expertise is an option that deserves serious consideration in light of the ongoing nature of modernization.[3]

FAA Has an Opportunity to Reassess and Report Progress Against Modernization Goals

The original NAS Plan contained generalized, high-level goals such as increased controller productivity and a reduced risk of accidents and collisions to be achieved when NAS Plan projects are completed in the late 1990s. A problem associated with the NAS Plan is that decision makers have no yardstick with which to measure the agency's incremental progress toward meeting long-term goals. Acknowledging that the NAS Plan no longer reflected its total ATC modernization needs, FAA recently announced that it was developing a more comprehensive program entitled the Capital Investment Plan. This new effort will include the original NAS Plan projects as well as new projects needed for added capacity, new requirements, and sustaining existing operations.

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[3] Issues Related to FAA's Modernization of the Air Traffic Control System (GAO/T-RCED-90-32).

We believe the Capital Investment Plan provides FAA with the opportunity to comply with our previous recommendation that it set relative project priorities on the basis of benefit cost ratios, mission needs, or safety considerations.[4] Prioritization would provide visibility to FAA's proposed emphasis in the Capital Investment Plan. Indeed, since the new Plan will distinguish those projects required to sustain the existing ATC system from those needed to increase capacity, the Congress would be in a better position to weigh trade-offs between near-term and long-term activities. The new Plan also provides FAA with the opportunity to reassess and update its original goals, to develop a measurement strategy, and clearly show its progress in meeting these goals. For example, one approach FAA can take is to specify in quantitative terms, how incremental increases in controller productivity contribute to reducing flight delays and the risk of collisions.

TRANSITION TO THE NEW ATC SYSTEM

Once developed, new ATC systems still need to be installed and made operational in the field. FAA has yet to effectively address two key issues relating to bringing new systems on line: namely, identifying how much staff is needed to install and test equipment in the field and train controllers in its operation, and providing regions with an accurate information system for planning implementation activities.

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[4] Air Traffic Control: Continued Improvements Needed in FAA's Management of the NAS Plan (GAO/RCED-89-7, Nov. 10, 1988).

Field Implementation Staff Needs Still Unknown

After last year's appropriation hearings, this Subcommittee told FAA to assess its human resource requirements to bring modernization equipment on line and report on its plans to meet such needs. It has not done so. While FAA officials agree that they need more staff, they have not estimated all implementation requirements. FAA has a draft study that estimates its needs for projects to be installed at one group of facilities: Air Route Traffic Control Centers. While this study of implementation needs at Centers is still in draft form and its results are being validated, it does suggest substantial staffing shortfalls of air traffic controllers, engineers, and technicians--over 700 staff years in fiscal year 1991 and steadily increasing to over 1,900 staff years in fiscal year 1995 (see attachment I for more details). It also stated that 40 percent of the estimated implementation tasks had to be performed by FAA controllers, engineers, and technicians and could not be contracted out. These numbers do not include estimates for other facilities, such as TRACONs and airport towers, where FAA has not assessed its staffing needs.

As we reported in June 1989, continued delays in NAS Plan projects have saved FAA from having to face the consequences of not having enough people available to bring new systems on line.[5] However, FAA may soon have new systems at its disposal that go unused unless it quickly determines the number of people it needs and takes decisive action to hire and train them.

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[5] Air Traffic Control: FAA's Implementation of Modernization Projects in the Field (GAO/RCED-89-92, June 28, 1989).

FAA's Regional Information System Not Fully Operational

We have also reported on the inadequacy of FAA's information systems to monitor project milestones and estimate project resources. In particular, FAA regions had difficulty scheduling resources to install new systems because of accurate equipment delivery dates. To improve its management of information, FAA initiated development of a new reporting system. Initially projected to be on line by January 1990, the new system is not scheduled to be complete for another 3 to 6 months.

In the meantime, FAA project managers continue to use the old information systems. This has led to problems, as evidenced by a Charlotte airport situation concerning installation of a new instrument landing system. Regional officials delayed contracting for site preparation for the new equipment because they believed the information system inaccurately portrayed the actual status of the contractor's equipment delivery plans. Indeed, although the contractor was 17 months behind schedule, the information system listed equipment delivery as occurring in January 1990. However, without telling the region, FAA purchased some equipment through other means and it was delivered to the Charlotte airport in February 1990. Since the site was not prepared to receive the equipment, it had to be stored on-site. FAA plans to complete installation in late June 1990.

I will now provide a status report on FAA's efforts to rebuild and train its safety work forces.

OPERATIONS WORK FORCES

Although FAA has made progress in increasing its work forces, staffing shortages persist, and the agency is falling short in training its existing work forces. We are concerned that FAA has not fully addressed the scope and cost of developing a sufficient and adequately trained work force. Maintaining a high level of air safety requires not only a commitment to fund increases in the air traffic controller, aviation safety inspector, and field-maintenance technician work forces, but also a concurrent commitment to adequately train them.

Hiring Goals Not Met and Staffing Needs Not Determined

Although FAA is making progress in increasing its controller and safety inspector work forces, it continues to experience shortages in both. Last January, FAA estimated it would fall 1,945 people short of its 1990 congressional mandate of 12,725 full performance controllers and that it also would not meet its mandate to have 17,500 controllers overall on board. The overall number includes developmental and full performance controllers. Although FAA has stated it does not need to meet its hiring mandate because of lower than expected aviation growth, the staffing level FAA actually requires cannot be determined because, after 3 years, staffing standards are still being updated.

FAA also will have a safety inspector shortfall of over 255 out of over 3,000 needed in 1991. The shortage may actually be greater because FAA's inspector staffing standards understate the number needed for major new inspection requirements such as "hands on" inspection of aging aircraft and surveillance of foreign aircraft repair stations. FAA plans to develop new inspector staffing standards by 1992 and believes that once developed they will show a need for more inspectors.

In addition, there is an emerging issue which could affect the size and role of the inspector work force. FAA is developing a concept called "self-audit," to better utilize the airlines' quality assurance programs to ensure that safety regulations governing pilots and maintenance are followed. This concept is based on the premise that air carriers are primarily responsible for ensuring that their operations are safe and in compliance with FAA regulations. It is too early to say how the self-audit concept will evolve and what the specifics will entail. We intend to closely follow the concept's development.

Technician Shortages Force FAA to Contract Out Maintenance

At the beginning of fiscal year 1990, FAA was over 1,500 people short of the 10,000 technicians it needed. FAA has not significantly increased its technician work force over the last several years because it thought it would need fewer technicians as new NAS Plan equipment came on line. However, this benefit has not yet materialized, and continued NAS Plan delays have resulted in existing equipment being maintained longer and more technicians being needed.

Now, as we have been predicting for several years, hiring enough technicians to overcome the shortfall is exacerbated because 38 percent of the maintenance work force is within 5 years of retirement age. To cope with this problem, FAA's proposes to hire 2,350 technicians by 1994 and increase the use of contracting. Even at this hiring rate, FAA is likely to experience shortages of fully trained technicians for some time because it takes from 3 to 5 years for a newly hired technician to reach the full performance level.

FAA proposes to spend an estimated $490 million through 1995 to contract for maintenance activities, including $170 million for activities which FAA acknowledges are better undertaken in-house. FAA now has several years' experience in maintenance contracting. To make informed decisions on funding these contract activities, the Congress needs information from FAA on how such contracting meets its needs, the impact of contracting on its efforts to recruit maintenance technician, and the relative cost of contracting versus in-house maintenance.

Pay Demonstration Project Has Had Mixed Results

As part of its plan to overcome staffing shortages, FAA began paying controllers, inspectors, and maintenance technicians an incentive allowance of up to 20 percent in June 1989 to attract people to hard-to-staff facilities in the Los Angeles, Oakland, Chicago, and New York areas. FAA has paid about $15 million in incentive allowances through March 1990. While the overall number of employees has slightly increased at participating facilities, results so far are mixed. For example, for the nine participating ATC facilities, only four have shown an increase in the number of experienced controllers.

Training Shortfalls Exacerbate Staffing Problems

Complicating its staffing problems, FAA is falling short in training controllers, inspectors, and maintenance technicians. For example, FAA has a continuing backlog of new inspector training. In fact, FAA may not hire all of the 300 inspectors it intends to bring on board this year because of its inability to train them. Part of the problem is that the Academy, FAA's primary training facility, does not have enough instructors. To address this problem, FAA recently announced an initiative to make instructor positions more attractive by upgrading pay and training. However, this initiative will take time to work, and FAA may need to seek short-term solutions to reduce its inspector training backlog.

The demand for training newly hired maintenance technician will also outstrip the Academy's capacity in fiscal years 1991 and 1992 when hiring plans call for about 900 new technicians. The Academy can accommodate only 640 new hires each year. FAA plans to meet the excess demand by using a type of computer-based instruction, which is ineffective, in part, because it is an inappropriate training medium for new technicians.

FAA's training shortfall is compounded by available training seats going unused. Although 28,000 students attended Academy training in fiscal year 1989, another 3,500 available seats were unfilled. FAA does not have a policy to minimize "no shows."

FAA Slow in Implementing Its Training Initiative

FAA has recognized its training deficiencies, such as poor training system design, outmoded and inadequate training delivery systems, and a fragmented training organization. To address these problems, FAA established an Office of Training and Higher Education and developed a comprehensive, $406 million training plan called Flight Plan for Training which extends through 1994. However, progress in implementing this plan has been slow--30 of its 47 projects are already behind schedule, some as much as a year. For example, FAA is late beginning improvements in its curricula for training maintenance technicians despite its critical need to sustain a major effort in this area.

In our view, this program is off track because of insufficient funding and poor planning. Due to internal competition for funds, FAA plans to spend only $48 million of the $89 million needed to keep the plan on track through fiscal year 1990. Poor planning has caused a ripple effect of delays. For example, improvements in maintenance technicians' curricula have not begun because FAA must first complete a study of the technicians' job tasks, which will be the basis of the training project. Yet, the job task study is itself a year behind schedule. This ripple effect ends up cascading throughout the system. Similarly, delays in increasing the use of simulation for controller training make it necessary to continue lengthy and costly on-the-job training for controllers.

In turn, lengthy controller training affects FAA's ability to meet it full performance level mandate for controllers.

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There is no doubt that the extraordinary needs of both maintaining and modernizing the ATC system will require substantial increases in FAA's funding. We believe it is crucial that FAA clearly show the Congress, the aviation community, and the flying public how these increases will result in measurable benefits.

In the F&E account, this will require FAA to prioritize its many needs, and assure that it has adequate staff to implement new systems. Regarding its current operations, FAA needs to work toward meeting Congressionally mandated goals for its work forces and determining its true work force staffing needs. Although FAA has started initiatives in some of these areas, they have often been delayed and fallen short of the mark. FAA needs to promptly address these problems if we are to see the safer and more efficient ATC system that the agency envisions. We intend to continue advising Congress on FAA's progress in these areas.

This concludes our prepared statement. I will be pleased to address the Subcommittee's questions at this time.

NAS PLAN IMPLEMENTATION RESOURCE ESTIMATES BY STAFF YEAR FOR FISCAL YEARS 1991-1995

FAA organization	Fiscal year 1991	Fiscal year 1992	Fiscal year 1993	Fiscal year 1994	Fiscal year 1995
Air traffic					
Requirements[a]	297	468	885	1,286	1,533
Availability	80	126	194	344	207
Shortfall[b]	217	342	691	942	1,326
Airway facilities					
Requirements[a]	706	820	862	860	799
Availability	214	214	214	214	214
Shortfall[b]	492	606	648	646	585
Total shortfall[b]	709	948	1,339	1,588	1,911

[a] The study estimated that about 40 percent of these requirements must be done by FAA on-site Center personnel, and that the remaining 60 percent could be accomplished by others such as contractors or FAA personnel from other locations.

[b] These shortfalls represent only work needed for NAS Plan implementation. They do not include operational shortfalls, estimated at 411 staff years in fiscal year 1995, or projected attrition, estimated at 271 staff years in fiscal year 1995.

Source: August 1989 Draft ARTCC Resource Study

ACQUISITION OF MAJOR AUTOMATED SYSTEMS

Mr. **Lehman**. Ms. Hecker, you have a statement to make?

Ms. **Hecker**. Mr. Chairman, members of the Subcommittee, and Admiral Busey, I am pleased to be here this morning to discuss FAA's efforts to modernize its automated systems. During the past year, our reviews of a major planned general purpose procurement and two air traffic control modernization projects have uncovered fundamental weaknesses in FAA's acquisition of major automated systems.

These weaknesses have resulted in unjustified and costly procurements, further delays in delivering important components for the air traffic control modernization effort, and increased risk that existing air traffic control systems will be stressed beyond their capacities.

CORN

The first system that we looked at was CORN, the Computer Resources Nucleus Project. This is a $1.5-billion project which is in our view an example of an unjustified acquisition. With CORN, FAA intends to have a contractor operate its general purpose data processing functions such as payroll, aviation safety information systems, and personnel for the next ten years. FAA anticipates awarding the contract within the new few months.

While we believe that FAA's concept of contracting out its general purpose processing functions may be acceptable, we are concluding in our draft report that the CORN procurement has not been adequately justified and should not be awarded.

FAA has identified a number of reasons to justify procuring CORN. An important one is that insufficient computer capacity is causing poor response times in the current system. However we found that project officials could not support this assertion primarily because FAA does not have a needed capacity management and planning program that would provide data on computer capacity and explain why users are apparently experiencing slow response times. Moreover, our own analysis of the limited data that is available does not show evidence of insufficient computer capacity causing poor response times.

Another reason that FAA gave for procuring CORN is that its general purpose data processing needs would increase by 30 percent each year for the next ten years requiring a system about 1300 percent larger than the current one. This is equivalent to saying that in ten years a system will be needed that will have to produce 15 million printed pages per day, 365 days a year. We found that this projection is based on sparse data with little identification of the kinds of dramatic changes that might occur in FAA's missions to warrant such steep growth, particularly in later years.

In other areas that we examined on the procurement, we found that FAA's methodology for validating bidders' proposals is flawed, and FAA's cost estimate of $74.5 million for converting current applications to CORN is unreliable.

Finally, we think it is important to note that CORN itself will not improve the quality of information. The contractor would be required only to move or rehost current applications and data bases to the new system. The contractor will not be required to enhance the applications, improve their performance, or eliminate existing deficiencies.

In summary, while the CORN approach may have merit, we found that FAA's planning for this $1.5 billion contract has been inadequate. Before it spends hundreds of millions of dollars to move to a new system that neither guarantees a remedy for existing deficiencies nor improves current information, we believe that FAA should first identify the causes of perceived problems with current system performance.

MODE S

The second project that we looked at was Mode S or Mode Select, where we found that inadequate management oversight and action have resulted in delayed delivery of important components of the air traffic control modernization effort. Mode S is an air traffic control surveillance and communication system that is being developed to provide more accurate aircraft location information by replacing existing radars, and at the same time allowing controllers and pilots to exchange data.

We found that fifteen years after initiating the Mode S concept, FAA awarded a production contract for 137 Mode S systems. Now five years into this contract, the agency has spent more than half of the $271 million contract ceiling and still has not received the first workable system.

Delivery of the first fully capable Mode S system is now being projected for April 1993, five years later than originally planned. We believe that this situation occurred because FAA used a high risk acquisition strategy by awarding a production contract before adequately developing or testing the system.

Further, although officials were aware of development deficiencies as early as February 1987 and assured this committee at that time that the contract was under control, FAA did not act to correct problems until June 1989 when it warned the contractor that if deficiencies were not resolved, the contract might be terminated. Given these continuing problems, we are recommending in our draft report a department level evaluation of the risks involved in completing the contract and careful consideration of all alternatives available to the government.

Incredibly enough, even though FAA still does not have a working Mode S system, FAA has decided to spend over a billion dollars more to buy 259 additional systems. We find that this decision is unjustified. In making the decision, FAA did not properly analyze requirements, consider alternatives, or evaluate costs and benefits. We therefore believe that the Secretary of Transportation should direct the FAA Administrator to cancel plans for buying the additional 259 Mode S systems and to perform a thorough analysis of requirements, alternatives, benefits and costs.

ADVANCED AUTOMATION SYSTEM

The third area that we looked at this year was the Advanced Automation System, or AAS. We found that this was another project where FAA has encountered delays in the delivery of critical components of air traffic control modernization. The total AAS is estimated to cost $5 billion and is scheduled to replace aging air traffic control computer systems with new hardware, software, and controller work stations. In 1988, FAA awarded an acquisition contract to IBM to complete the design and production of AAS.

Less than a year after work began, FAA and IBM jointly identified a thirteen month delay in the delivery of the first major segment of three project increments. The major causes of this delay were an overly ambitious software development schedule and FAA's and the contractor's inability to resolve key open requirements issues. At present, we found that some requirements issues are still unresolved, which we believe will likely lead to even further delays.

As a consequence of the delay in the first segment, we are concerned that the potential exists that later phases of AAS to upgrade the terminal automation systems or TRACONs will also be delayed. This increases the likelihood that FAA will be forced to operate its current aging air traffic control systems at major terminal areas through the 1990s.

As we reported last year, many of these current systems have experienced capacity shortfalls. Indeed, almost 70 percent of the large, busy terminal radar approach control facilities reported to us that they had experienced either aircraft information actually disappearing from controllers' screens, flickering displays, or delayed computer responses to controllers' attempts to update or request data. These overload problems in our view threaten the ability of controllers to maintain safe separation of aircraft.

To address this dilemma, last year we recommended that the Secretary of Transportation direct FAA to institute a computer capacity and performance-management program at the larger TRACONs, and to investigate alternatives for meeting the larger TRACONs' air traffic control requirements for at least the next ten years. Since our report, FAA has initiated some steps to remedy capacity deficiencies.

However, regarding the need to explore alternatives, the Department of Transportation responded to our recommendation that they believed FAA had developed an appropriate interim solution in 1987 which would meet TRACON requirements for the next ten years. This interim solution is not encouraging. It calls for increasing the capacity of the present systems in larger TRACONs by pursuing sole source contracts to expand current system configurations to their maximum design limits.

This expansion will require FAA to buy 1960s-vintage computers similar to existing processors. These antiquated processors have less performance capability than a desktop computer that can be purchased in a local store.

Given the potential further delay in AAS and the clear inadequacies of existing computer systems, we believe that FAA is assuming the risk that its systems will not be able to handle the increasing air traffic of the 1990s. To prevent this potential threat to air traffic safety and the possibility of having to take drastic action in the future, such as limiting the number of aircraft, we reiterate our recommendation that FAA must immediately identify other alternatives for meeting the larger TRACONs' air traffic control requirements through the 1990s.

In summary, Mr. Chairman, we believe that our work demonstrates that FAA's acquisition management has suffered from fundamental weaknesses, weaknesses that have resulted in expensive and inadequately justified procurements such as CORN and Mode S, continued delays in the development of important components of the air traffic control modernization effort such as Mode S and AAS, and increased risk, due to repeated delays in AAS, that some aging air traffic control systems will be stressed beyond their capacities.

ACQUISITION PROCESS

Clearly, Mr. Chairman, implementation of the National Airspace System Plan is a formidable task. To develop and acquire so many large, complex systems would challenge the abilities of any organization. To do the best job possible, FAA must make acquisition a high priority. It must improve its acquisition management and ensure that acquisition efforts have the visibility and involvement of top management within the organization.

We understand that FAA has recently instituted a reorganization to give acquisition increased emphasis by creating the position of Executive Director of Acquisition. We find this to be a positive beginning. However reorganization must be accompanied by adequate program management, policies, and practices. Until FAA gets its acquisition house in order and breaks this trend of unjustified, costly, and delayed procurements, the American public cannot be assured that its money is being well spent or that its continued air safety is being ensured.

Mr. Chairman, that concludes my prepared remarks. I will be pleased to answer any questions that you or other members of the Subcommittee may have at this time.

[The prepared statement of Ms. Hecker follows:]

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FAA Encountering Problems in Acquiring Major Automated Systems

Statement of JayEtta Hecker, Director,
Resources, Community, and Economic Development
Information Systems,
Information Management and Technology Division

Before the Subcommittee on Transportation
and Related Agencies,
Committee on Appropriations,
House of Representatives

GAO/T-IMTEC-90-6

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Mr. Chairman and Members of the Subcommittee:

We are pleased to be here to discuss the Federal Aviation Administration's (FAA) efforts to modernize and upgrade its automated systems. During the past year our reviews of a major planned general-purpose procurement and two air traffic control modernization projects have uncovered consistent fundamental weaknesses in FAA's acquisition of major automated systems. These weaknesses could result in unjustified and costly procurements, further delays in delivering important components for the air traffic control modernization effort, and increased risk that existing air traffic control systems will be stressed beyond their capacities.

FAA's Computer Resources Nucleus (CORN) project is one example of an inadequately justified general-purpose procurement. With CORN, FAA intends to have a contractor provide and operate computer facilities for the agency's general-purpose data-processing functions such as payroll, personnel, and aviation safety information systems for the next 10 years. The total estimated cost for the 10 years is about $1.5 billion, a tenfold increase since the project was first proposed in 1986. FAA anticipates that the CORN contract will be awarded within the next few months.

While FAA's concept to contract out its general-purpose functions may be acceptable, the CORN procurement is not adequately justified and therefore, we are recommending in a draft report that it not be awarded.

FAA has identified a number of reasons to justify procuring CORN. One is insufficient computer capacity causing poor response times in the current system. However, project officials could not support this assertion, primarily because FAA does not perform needed capacity management and planning that would provide data on computer capacity and explain why users are apparently experiencing slow response times. Our own analysis of the limited data available does not show evidence of insufficient computer capacity causing poor response times. Other problems may be the source of the perceived poor response times, such as inefficient software or communications, which are not subject to change under CORN. This means that after investing hundreds of millions of dollars in procuring more computer capacity through CORN, FAA may still end up with poor response times.

A second reason for procuring CORN is FAA's claim that its general-purpose data-processing needs will increase by 30 percent each year for 10 years, ultimately requiring a system about 1300 percent larger than the current one. This is equivalent to saying that in 10 years a system will be needed that can produce about 15 million printed pages per day, 365 days per year. This projection is based on sparse data with little identification of what dramatic changes will occur in FAA's missions to warrant this steep growth in later years.

Other major unresolved problems and uncertainties could increase the cost of CORN. In particular, FAA's method for validating bidders' proposed solutions is deficient because information that FAA provided to vendors to aid them in developing their proposals was incomplete. Further, the extremely small sample work load that FAA developed for validating proposals is unrepresentative of the agency's total work load. This flawed methodology will not provide adequate data for accurately evaluating vendors' proposals and their proposed charges for data-processing services. This deficiency could have cost ramifications throughout the life of the contract.

FAA's cost estimate of $74.5 million for converting current applications to CORN is unreliable. FAA estimates the cost to convert the 15 million lines of existing software at about $5 to $6 per line of code, while industry estimates are usually $15 to $20 per line of code or higher. Also, since generating the cost estimate, FAA has increased the amount of conversion work to be performed by the contractor and has doubled the amount of time needed to do this without correspondingly increasing the cost estimate. The estimate is based on unvalidated assumptions about the availability of FAA staff to assist the contractor in the conversion.

In addition, CORN will not improve the quality of information. Under CORN, the contractor will be required only to move current applications and data bases to the new system. The contractor will not be required to enhance the applications, improve their performance, or eliminate existing deficiencies. Therefore, existing problems with FAA's applications and data bases would simply be transferred to CORN, at considerable expense.

In summary, while the CORN approach may have merit, FAA's justification and planning for this effort has been inadequate. Before it spends hundreds of millions of dollars to move to a new system that neither guarantees a remedy for existing deficiencies nor improves current information, FAA should first identify the causes of perceived problems with current system performance.

Mode Select, or Mode S, is another project where lack of adequate management oversight and action has resulted in the delayed delivery of important air traffic control system components. Mode S is an air traffic control surveillance and communication system that is being developed to provide more accurate aircraft location information by replacing some existing radars, and to allow controllers and pilots to exchange data, such as weather information. Fifteen years after initiating the Mode S concept, FAA awarded a production contract in 1984 to a Westinghouse and UNISYS joint venture to buy 137 Mode S systems at an original estimated cost of $221 million. In 1988, before any of the 137 systems had been successfully produced, FAA decided to purchase 259 more Mode S systems, with contract award scheduled for late 1992. FAA estimates that the total cost of deploying all 396 systems will be $1.7 billion.

Over 5 years after FAA awarded the contract for the initial 137 systems, the agency has spent about $145 million of the $271-million contract ceiling price without receiving the first system. Delivery of the first fully capable Mode S system is now scheduled for April 1993, 5 years later than originally planned. This occurred because FAA used a high-risk acquisition strategy and did not remedy contract problems when they arose. In acquiring Mode S, FAA did not adequately develop or test the system before awarding the production contract, which contributed to later technical problems. Further, although officials knew of these problems as early as February 1987, FAA did not act to correct them until June 1989, when it warned the contractor that if contract deficiencies were not resolved, the contract might be terminated.

Since June 1989, FAA and the contractor have been unable to agree on an approach to overcome the contract problems. Recently, additional delays occurred and the contracting officer stopped paying the contractor until progress is made. These continuing problems make it uncertain whether FAA's approach--to negotiate additional contract changes--is the most effective way to deal with this situation. Therefore, we believe the Secretary of Transportation should conduct an independent evaluation of the economic, operational, and technical risks involved in completing the Mode S contract that considers all alternatives available to the government--including terminating the contract in whole or in part.

Even though Mode S still does not work, FAA has decided to spend over a billion dollars to buy 259 more of the systems. This decision is unjustified. In making this decision, FAA did not properly analyze requirements, did not adequately consider alternatives, and did not evaluate benefits and costs. We therefore are recommending in a draft report that the Secretary of Transportation direct the FAA Administrator to cancel plans for buying the additional 259 Mode S systems and to perform a thorough analysis of requirements, alternatives, benefits, and costs.

The Advanced Automation System, or AAS, is yet another project where FAA is encountering delays in the delivery of critical components for the air traffic control modernization effort. These delays have the potential for affecting FAA's ability to handle safely the predicted increases in air traffic into the next century.

AAS is scheduled to replace aging air traffic control computer systems with new hardware, software, and controller workstations. Improvements are expected to result primarily from (1) the use of modern equipment and (2) the development of new software functions intended to automate some controller functions and allow more aircraft to fly user-preferred, fuel-efficient routes. FAA awarded competitive contracts to design AAS to International Business Machines (IBM) Corporation and Hughes Aircraft Company in 1984. During this design competition phase, new requirements were added, contract costs doubled, and the schedule was delayed a year. In 1988, FAA awarded a contract to IBM to complete the design and production of AAS. The cost of AAS is estimated at over $5 billion, making it the most expensive program in the National Airspace System Plan.

Less than a year after the contractor began work on the contract, FAA and IBM jointly identified a 13-month delay in the scheduled delivery of the first major segment of three project increments, called the Initial Sector Suite System. The primary causes of this delay were an overly ambitious software development schedule and FAA's and the contractor's inability to resolve key requirements issues. Although FAA's required schedule appeared unrealistic, IBM agreed to it. In addition, FAA did not adequately define some requirements, and IBM did not thoroughly analyze other requirements. At present, some requirements issues are still unresolved, which will likely lead to even further delays.

As a consequence of the delay in the first segment, the potential exists that later phases of AAS to upgrade terminal automation systems will also be delayed. This increases the likelihood that FAA will be forced to operate its current aging systems through the 1990s and further delay benefits. As we reported last year, many of these current systems have experienced capacity shortfalls.[1] Indeed, almost 70 percent of the large, busy terminal radar approach control facilities, known as TRACONs, reported to us that they had experienced aircraft information disappearing from controllers' screens, flickering displays, or delayed computer responses to controllers' attempts to update or request data. These overload problems threaten the ability of controllers to maintain safe separation of aircraft.

To address this dilemma, last year we recommended that the Secretary of Transportation direct FAA to institute a computer capacity and performance management program to monitor work loads and system utilization in all facilities, and investigate alternatives for meeting the larger TRACONs' air traffic control requirements for at least the next 10 years. Since our report, FAA has initiated some steps to remedy immediate capacity deficiencies.

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[1] Air Traffic Control: Computer Capacity Shortfalls May Impair Flight Safety (GAO/IMTEC-89-63, July 6, 1989).

However, regarding the need to explore alternatives, the Department of Transportation believed that FAA had already developed an appropriate interim solution in 1987 to meet TRACON requirements for the next 10 years. This interim solution is not encouraging. It calls for increasing the capacity of the present systems in larger TRACONs by pursuing sole-source contracts to expand current system configurations to their maximum design limits. This expansion will require FAA to buy 1960s-vintage computers similar to existing processors. These antiquated processors have less processing capability than a desktop computer that can be purchased in a local store.

Given the potential further delay in AAS and the clear inadequacie of the existing computer systems in large TRACONs, FAA is assuming the risk that its systems will not be able to handle the increasing air traffic of the 1990s. To prevent this potential threat to air traffic safety and reduce the possible need to take drastic actions in the future, such as limiting the number of aircraft, we reiterate our recommendation that FAA immediately identify other alternatives for meeting the larger TRACONs' air traffic control requirements through the 1990s.

In summary, Mr. Chairman, FAA's acquisition management suffers from fundamental weaknesses that have resulted in expensive, inadequately justified procurements, continued delays in the development and delivery of important elements of air traffic control modernization, and increased risk that some existing air traffic control systems will be stressed beyond their capacities. Implementation of the National Airspace System Plan is a formidable task. To develop and acquire so many large, complex systems would challenge the abilities of any organization.

To do the best job possible, FAA must elevate the importance of acquisition management within the agency. It must improve its acquisition management and ensure that acquisition has the visibility and involvement of top management within the organization. We understand that FAA has recently instituted a reorganization to give acquisition increased emphasis. This is a positive beginning. However, reorganization must be accompanied by adequate program management policies and practices. Until FAA gets its acquisition house in order and breaks the trend of unjustified, costly, and delayed procurements, the American public cannot be assured that its money is being well spent and that its air safety is ensured.

Mr. Chairman, this concludes my prepared remarks. I will be pleased to answer any questions you or other members of the Subcommittee may have at this time.

NAS PLAN COMPLETION

Mr. **Lehman**. Thank you very much. It is not a very encouraging statement. At least you did not mention $600 toilet seats. You did mention that certain changes were improving. Basically this NAS Plan concerns me as much as anything else. When I look back, it has been almost nine years since this was conceived. And by now we should be approaching the time when the NAS Plan should have been a fact of life.

Should not the NAS Plan be almost ready to have been completed according to the original concept?

Mr. **Mead**. Yes, that is so. I think though that probably the original dates that FAA established—that laid out the expectations for the aviation community and everybody else—were wildly optimistic. And also, as I said in my statement, we are living today with decisions that were made four or five years ago that we cannot undo.

NAS PLAN DELAYS

Mr. **Lehman**. Well, you know, I think in terms of metaphors. I am a Pro-Choice person, but I guess right now as you said you cannot undo it, then I would have to be a Right to Lifer as far as the NAS Plan is concerned. But what concerns me also is that in a sense that either you are going to be pregnant forever or the baby will be stillborn, and that is what bothers me.

Will the NAS Plan be dead on arrival, or will it arrive so late that it will be superceded by something like satellites and we will no longer need the present concept?

Mr. **Mead**. One proposal that FAA has made provides a good bit of encouragement to address the concern that you raise. They are bringing together in one place all of their modernization projects, which will show what they are going to be considering in the out years.

I certainly would not recommend throwing the baby out with the bath water on all of the work that we have done to date on the NAS Plan. But I think that it could be well recommended to FAA to have somewhere in its organization an evaluation of the use of satellites in the future. But certainly we would not want to recommend throwing the baby out with the bath water.

Mr. **Lehman**. Would you agree with the assessment that delays in the cost overruns are much more excessive than normal in most of these kinds of programs?

Mr. **Mead**. Yes, I think that I would agree with that.

NAS PLAN MANAGEMENT

Mr. **Lehman**. And after so many years, apparently these cost overruns and delays are still occurring and they are running like hell just to stay in place.

Briefly, could you say why they are continuing? You seemed to have answered that by saying that the program management is not really being handled right. Is that the problem?

Mr. **Mead**. I think that the FAA has made and has on the drawing board a number of excellent management proposals. But again we cannot undo decisions that were made years ago to move systems to production without testing. Also there is a major issue about the integration of planning at FAA, and I think that our statement illustrates that.

For example, once you construct or build all of these systems, you need to install them in the field. Well, there needs to be an integration of planning there. Even if the manufacturer builds a system, somebody has to ultimately install it. And ultimately the people who use that system need to be trained in its operation. We have found disconnects in each one of those phases. So the planning for the overall effort needs to be integrated, and I think that FAA is headed in that direction.

Mr. LEHMAN. What types of projects have caused the modernization price tag to increase from $15.8 billion to $27 billion, and have these non-NAS Plan projects received the same level of budgetary scrutiny and rigorous planning discipline within the FAA as NAS Plan projects themselves?

Mr. LI. Mr. Chairman, there have been a large number of projects that have been identified since the NAS Plan was introduced in 1981. These projects were due primarily to two reasons. One, because the projects were slipping, and they had to introduce new projects to bridge that particular need. In addition, there is an acknowledgement that some requirements were not identified in 1981 and as a result new projects have occurred.

As an example, in the latest planning that FAA has completed, they have identified the need for more digital radars, and that will have a one billion dollar price tag. They have identified the additional need for Mode S devices. And another project that perhaps some people are aware of is the Dallas-Fort Worth area expansion. As a result, some of the infrastructure that is needed in terms of the computers and radars to control that increased use have come into being. That project is over $100 million.

FAA REQUIREMENTS AND THE INTERIM SUPPORT PLAN

Mr. LEHMAN. How would you evaluate the FAA's requirements setting process, how did they make their choices, would you care to give them a letter grade on that?

Mr. LI. There is one project in particular, Mr. Chairman, this year that we have some ongoing work, and that we are quite concerned about. And that pertains to the Interim Support Plan. We feel that in that particular case then Administrator McArtor made a management decision to proceed with the project. Not all of the reviews that FAA normally follows as part of its established procedures were followed.

As a result, we are quite concerned. That is the reason why Mr. Mead in his prepared statement mentioned the fact that in the future, as FAA proceeds with additional short term projects, they should pay attention to that particular area.

Mr. MEAD. Let me amplify on that. Let us look at this Interim Support Plan. FAA has come to Congress with something called an Interim Support Plan. And you, as the Chairman of this Subcommittee, probably have an expectation that it is a plan to accommodate all of FAA's interim needs to bridge the gap caused by the delays in the modernization program.

So when a year or two later they come up and say we need a lot more interim projects, or sometimes it may be six or seven months later, you say I thought that we just had this plan up here. Why are there all of these changes to it? And that is what Mr. Li is referring to—that in the requirements setting process we need a lot more scrutiny of projects before they surface and an analysis of which ones are the most cost beneficial. We are reasonably certain that you will hear suggestions for more interim support plans.

Mr. LEHMAN. But, in general, how would you grade them on their overall process and not just on an interim plan?

Ms. HECKER. Mr. Chairman, if I may, I think on the basis of the projects that we have reviewed that I would not give them more than a C. I think that the CORN project is a question of requirements. The assertion about some growth, and an assertion about a problem being experienced with the current systems—all that is not well understood.

Another case is the planned addition of more Mode S systems, which is a specific NAS Plan change proposal. There was no analysis of the requirements, the alternatives, the costs and the benefits that anywhere begin to justify this planned billion dollar acquisition.

In addition, on the AAS, there was a design competition phase that ran four years with two competing vendors that was over cost and over schedule.

Mr. LEHMAN. Is that the voice switching that you are talking about?

Ms. HECKER. No. This is AAS, the centerpiece of the modernization plan, which had an extensive design phase. The design phase did not proceed as planned, with costs increasing until they were finally capped. To manage something out of that process, what FAA did was lower the expectations by reducing the number of detailed requirements that were finalized in that design competition phase. FAA then went into the next phase with many open requirements.

An important result of the delays occurring right now on AAS is that aging TRACON systems will need to be upgraded and maintained for an even longer period of time.

Mr. MEAD. I would come back to this question. I know that you like a global assessment of the different components of modernization. And in the area of maintaining schedules, I would say that this has been a rough year. I would not go above a D on maintaining schedules this year. That is honestly a legacy of the past. Where I think that there is promise is in the planning for future modernization. I believe that they are beginning to get their act together.

Concerning their implementation of modernization projects in the field, I would not go above a C. And if we do not come to grips with the situation in the field, there will be big problems two years down the road.

Mr. LEHMAN. How about the prioritizing of the F&E projects themselves, are they putting the priorities in the right place?

Mr. LI. In our conversations with the Administrator, he has advised us that he is looking into that area. However they have not formally provided us with either the methodology or with the results of their prioritizing individual projects.

Mr. LEHMAN. And you continue to believe that the FAA needs additional staff to implement the NAS Plan projects. They have requested an increase of 375 positions in the fiscal year 1991 budget. Should we provide additional staff, and if not, why not?

Mr. MEAD. They will probably need staff in that neighborhood. We have seen estimates that go as high as 1500 extra people by 1994 or 1995 peaking in that year.

Mr. LEHMAN. Mr. Mead, you stated that seven of the interim support plan projects were not cost effective. Are they still alive?

Mr. MEAD. Yes. I stated that FAA's own systems integration contractor judged them not to be cost beneficial. Yes, they are alive and well.

Mr. LEHMAN. Should they continue to be?

Mr. MEAD. Yes, I think that those projects are under way. They are already sinking money into them and have ordered the goods.

Mr. LEHMAN. It is too far down the road?

Mr. MEAD. Yes, sir.

CONTROLLER STAFFING

Mr. LEHMAN. What is your view of the controller staffing situation in general?

Mr. MEAD. The controller staffing situation? They have made a lot of progress there. There are two big issues. One is the training issue. We need to get the new controllers out there in the field and trained sooner. That is going to require attention to training, specifically simulator training. They have not made the progress that they would like in that area.

The second one is now that the controller numbers are increasing and you do not hear the screaming that there are these vast shortages today.

We now need to know how many controllers you need and where you need them. And we do not know that, and that is why FAA needs to complete its staffing standards. Concerning the pay demonstration project, which is a necessary component of your question, it is much too early to tell. It has had mixed results. I suspect that in the final analysis you will find that it will be fairly successful in certain regions of the country. There are some interesting early patterns.

Mr. LEHMAN. How about morale in general among the controllers, do you have any feel for morale?

Mr. MEAD. We did the air traffic controller survey. That was based on responses in the summer of 1988. That was not good. On the other hand, we have not gone out to survey it again. We still get a lot of letters from controllers. FAA might have a better finger on the pulse on that one.

Mr. LEHMAN. In some places it is better than others?

Mr. MEAD. No question about it.

Mr. LEHMAN. If we could find out what works, then we could put that kind of a way of dealing with controllers. If they are happy in Birmingham and unhappy in Indianapolis, we should find out why.

Mr. **Mead**. Yes. In fact after our controller survey, we met with FAA management. We sent out to FAA the results of that controller survey with those that pertained to individual facilities. FAA management directed the different facility managers to get back to them with an action plan on what would be done. Those action plans should now be into the Administrator and we intend to review them. Bob.

Mr. **Shideler**. That is correct, Mr. Chairman. The action plans are now in, and FAA has taken a look at them. We have not followed up since our work to see what they are doing.

Mr. **Lehman**. Mr. Coughlin.

USE OF SATELLITES

Mr. **Coughlin**. Thank you, Mr. Chairman. I just want to follow up on some questions that the Chairman has asked. One of the things over the years that has been the subject of concern to this committee and to the FAA has been the fact that either at some point you had to have a cutoff in what the NAS Plan technology was going to be and say that this is it and we are going to go with this technology. On the other hand you could keep creeping along in improving the plan as technology changed.

Partially as a result of your recommendations, we have done of both. And one of the reasons that I suspect for some of the delays and increases in price has been that we have done both. That we have not just simply had a cut-off, and we have not leapfrogged the technology, but we have continued to improve the plan over the years.

My question then comes in terms of the satellite development. There have been suggestions that we should scrap the plan and go onto a satellite system.

Is the present plan incompatible with a satellite system or would it be necessary in order to go to a satellite system in any case?

Mr. **Li**. Mr. Coughlin, our understanding, and I guess that this goes back all of the way to when Administrator Helms made this particular decision, is that the decision was made in 1981 that satellite technology just was not ready. And with that particular assumption then, they proceeded to go with a ground-based system.

I am sure that you are referring to AOPA's very recent report that recommended scrapping many parts of the current NAS Plan in favor of satellite technology. While we have not looked at every single bit of detail in terms of those particular recommendations and the impact that it would have, I think that from a very general standpoint it would be unwise, in the terms that the Chairman gave just earlier, to throw out the baby with the bath water.

I think that there are some important needs that still need to be met right now. We have no other alternative but to meet those particular needs. And satellite technology, as promising as it is, just is not ready at this point in time in my estimation.

Now, FAA has started to recognize the importance of satellite technology. They have incorporated in their latest NAS Plan the need to do some demonstration projects. They are providing and acquiring some GPS monitors. My understanding is that they believe that AAS is compatible with satellite technology, and that the requirement will be to consolidate some of the facilities anyway.

My greatest concern, Mr. Coughlin, in that particular area is that in the Capital Investment Plan FAA believes that they will need an additional one billion dollars worth of radars. I think that satellite technology may preclude that from happening, and that they should look at that very closely.

So while a lot of the NAS Plan projects, as they are currently engineered, should be continued, I think that there are some future projects that this particular subcommittee should be looking at very closely.

Mr. COUGHLIN. Have you analyzed what parts of the NAS Plan are compatible with satellite technology and what parts of the NAS Plan would not be compatible with satellite technology?

Mr. LI. No, we have not. But I understand that my colleagues from the Information Management and Technology Division will have something planned in the future.

Mr. COUGHLIN. It seems to me that that is an important thing for us to know as a committee as to what part of the currently conceived NAS Plan might be scrapped with the advent of satellite technology and what part would still be necessary even with the satellite technology.

The NAS Plan as unveiled in 1981 consisted of some 90 separate projects, and it has grown to 187 separate projects and at a higher cost and a longer time to complete. The AOPA conducted a project by project analysis of 155 uncompleted NAS Plan projects and reports that 34 could be partially or totally eliminated at a cost savings of approximately $11 billion.

Have you looked at that AOPA study or the projects themselves and can this be done?

Mr. LI. Yes. That is the study that I was just referring to earlier. And I have a lot of respect for the people at AOPA. I think that the primary benefit of their study is to have brought some visibility to the fact that satellite technology is coming down the road and that we really should be looking at it. However as I said earlier, I believe that a wholesale cutting of projects at this point in time really needs further analysis.

AOPA RECOMMENDATIONS

Mr. COUGHLIN. Have you looked specifically at the 34 projects that the AOPA suggested be eliminated and can they be eliminated?

Mr. LI. I am aware of the projects and I have looked at their study. I believe that some of the needs that they are identifying in terms of cutting out Mode S totally would be inappropriate at this time.

Ms. HECKER. I might add though our point about cancelling the second buy of an additional 259 Mode S systems. In this case, an alternatives analysis needs to be done to justify this acquisition. The key issue is whether you really need the additional ground-based systems with the features that it has to cover the rest of the country.

The original 137 Mode S systems, which we would not recommend scrapping, are needed and provide some important additional capabilities. These systems cover most of the country above 12,000 feet. Our concern is that we do not believe there is adequate justification to go ahead with the 259 and some of the additional airspace could potentially be covered by satellites.

Mr. COUGHLIN. We will be coming back to the Mode S question in a few minutes I believe. But what I am trying to get at is that you have 34 specific projects that the AOPA said could be partially or totally eliminated.

Have you gone down those item by item and could you provide for the record which ones are limited and which ones are not limited?

Mr. MEAD. We can provide for the record some commentary on each one. We are not in a position to recommend scrapping now of any one of those projects. There may be some requirements—in terms of the numbers of a particular system that is being ordered—that can experience some downward adjustment.

Mr. COUGHLIN. You are saying that you could not recommend scrapping any of those particular projects?

Mr. MEAD. That is correct.

Mr. COUGHLIN. So it would be reordering them rather than scrapping them?

Mr. MEAD. Yes. And there may also be some opportunities for resequencing.

ATC MODERNIZATION PROJECT

Mr. COUGHLIN. The GAO and FAA have disagreed on how to characterize modernization. In the past, FAA has differentiated original National Airspace Plan projects from new requirements such as radars for the new Denver Airport as an example. GAO feels that regardless of whether projects are designed as NAS Plan or non-NAS Plan that they are all related to air traffic control modernization and should be managed as a single entity.

Has the GAO and the FAA come to any agreement on this and what is to be counted and what is not to be counted?

Mr. MEAD. Yes, we have come to an agreement with the FAA. The FAA, as I stated in my testimony, is preparing a capital investment program that will pull together the totality of the modernization effort. Also, that plan will be broken down between near term projects, long term projects, and the NAS Plan projects. So at least you will have a base line to go back to the original NAS Plan projects. You will be able to see the status of those even though the capital investment program will represent the totality of modernization.

Mr. COUGHLIN. Mr. Chairman, I have some additional questions, but I will yield at this time.

Mr. LEHMAN. Thank you, Mr. Coughlin.

Mr. Carr.

CORN

Mr. CARR. Thank you, Mr. Chairman.

It is nice to see you again, and to let you know that we rely on the materials that you provide us. I would like to ask Ms. Hecker a little bit about this CORN project.

When did that start?

Ms. HECKER. The concept, we understand, has been in development for probably about three years. And some studies have been done and published during that time period. 1986 actually was when the concept was developed.

Mr. CARR. 1986.

Mr. WILLEMSSEN. I might add, sir, that between 1986 and 1987 that the estimated project cost escalated from was about $148 million to the present $1.5 billion.

Mr. CARR. All right. Now that you have put that in the record, let us start out. In 1986, what did they say that they were going to do? I am concerned a little bit about spin here, and we are really looking for truth. I guess that the point here is what was their project in 1986 and what did they try to do, how did it change in 1987, and what cost did that add, and in 1988 and so on, step me through that whole thing.

Mr. **Willemssen**. Initially, the idea was just to take the Mike Monroney Center and potentially contract out some of the main frame processing there. Between 1986 and 1987——

Mr. **Carr**. Now what did they use that main frame processing for at the Mike Monroney Center?

Mr. **Willemssen**. Aviation safety information systems, and some of the financial and other administrative systems. Then from 1986 to 1987, there was a decision to expand it to the rest of the general processing applications that are currently done by FAA in the nine regional offices, two centers, and headquarters. So that added to the cost. In addition, there was a further analysis of the kind of requirements associated with the plan and that added some costs.

Mr. **Carr**. What were those requirement changes?

Mr. **Willemssen**. It was a better understanding of the kind of effort needed in actually converting all of these applications, of which there are approximately 270 different systems that would have to be converted under CORN.

Mr. **Carr**. Software systems or hardware or both?

Mr. **Willemssen**. The actual conversion would be the software and then under CORN, the winning vendor would be supplying the hardware.

Mr. **Carr**. And when did the project as we currently know it get its final definition?

Mr. **Willemssen**. During 1987 there was a decision made to have additional optional quantities for other DOT modes and other FAA related applications. The final estimate of $1.495 billion was made in December 1987.

Mr. **Carr**. I am sorry that I have to put you through that. You know, we lay these little things out about how it starts out at $150 million and then suddenly it is $1.5 billion. And some bright-eyed bushy tailed newspaper person is going to say wow, those people are just out of their world. So you have got to get through that we are shooting at a moving target here.

Now your review, when did you start your view of the CORN project?

Ms. **Hecker**. Last January.

Mr. **Carr**. Last January. And was this something that you did on your own motion or somebody asked?

Ms. **Hecker**. At the request of this committee.

Mr. **Carr**. The Chairman sent you a letter and said take a look at this, is that the idea?

Mr. **Willemssen**. There was language in two subcommittee reports asking that we evaluate CORN.

Mr. **Carr**. Well, I usually read the reports and memorize everything. I just must have forgotten that one. [Laughter.]

The current system that they are using then is different kinds of hardware all over the country, is that the kind of thing that I am led to believe then, one at the Mike Monroney

Center and every regional office probably has its own little operation?

Ms. HECKER. There are primarily two parts of the system. About 60 percent of the system is IBM based, and that is the main frame that is at the Oklahoma Center. The regions all have Data General minicomputers. The common system is defined by those two main architectures.

Mr. CARR. And presumably the IBM at the Mike Monroney Center is what kind of IBM?

Ms. HECKER. The 3084.

Mr. CARR. What kind of machine is that, I do not know main frames, I mean what vintage is that?

Mr. WILLEMSSEN. It is a currently produced machine. And they do have plans even in view of CORN to go to a 3090 which is a more recent vintage.

Mr. CARR. And the Data General computers at the regional centers, what vintage are they, were they part of the same procurement?

Mr. WILLEMSSEN. They are part of different procurements, but they are roughly 1987.

Mr. CARR. 1987.

Mr. WILLEMSSEN. They were upgraded during 1987 and 1988.

Mr. CARR. And presumably the Data General Equipment communicates also with IBM equipment at the Mike Monroney Center and with each other, do they do that or not, are they kind of standalones or what happens?

Mr. FINEDORE. It is what is known as a distributed system, and they do communicate with each other.

Mr. CARR. But are they on line with each other all of the time or just zapping data from one to the other when they need to?

Mr. FINEDORE. They are linked through an administrative telecommunications system. As they need to exchange information, it is through that system.

Mr. CARR. But I am led to believe that they are not all networked in real time. Maybe I am not asking the question right.

Mr. FINEDORE. It is correct to say that while the Data General equipment is networked on line to each other and to the IBM equipment not all applications are real-time.

Mr. CARR. Was the need to have some kind of a common real time linked system part of your investigation, or has FAA not adequately justified the need for that?

Ms. HECKER. It was not a major part of the justification. The justification focused largely on the problem of the poor response time and the dramatic steep growth that was projected to occur at a 30 percent rate compounded for ten years Therefore, we focused on these areas. Our primary concern was the response time issue because based on our inquiry, agency officials did not have the data to support their reasons for the response time problems.

Our own analysis did not support FAA's claim that capacity was causing response time problems. This is important because many of the benefits of the CORN proposal are related to improvements in response time. We are not sure that the FAA can really be assured that they will get improved response time. If the problem is caused by the software, the communications processor, or several other factors that could cause poor response time, which in our view is a reasonable likelihood, this solution will not address that problem.

Mr. CARR. Were those the only two justifications that you looked at, capacity, the current slow response time and future capacity, those are the only two things that you looked at?

Mr. WILLEMSSEN. We also looked at their general assertion that there was overall saturation on the system. FAA was not able to supply us with the utilization data used for their original justification. Therefore we did our own analysis and initially found that there was not the saturation that they said existed. Since that time we have seen some growth in the amount of processing utilization that is being experienced. However, we do not see that growth as necessarily causing a response time problem.

Mr. CARR. Did you have cause to answer or ask the question even though they did not particularly prompt it that you have got all of these systems out there and they are not the same type and you presumably got some FAA personnel operating all of this stuff.

Do they own or lease these machines?

Ms. HECKER. Currently they own the machines.

Mr. CARR. Own them. So they have to have some responsibility for operation and maintenance, at least minor kinds of things.

Did you think to run some numbers on what the cost savings would be? I mean that $1.5 billion is a big number hanging out there and there is nothing on the other side of the ledger that says that we will not have to maintain these other systems, or if we have to have some kind of distributed system that it could be smaller or a different kind or something like that. Did you ask any of those kinds of questions, how much this is projected to save?

Ms. HECKER. It was part of their cost benefit analysis, and we did not do a focused critique of that analysis. We focused in particular on the requirements side, and we are concerned that that was not well substantiated. Consequently, the basis for many of CORN's key benefits was collapsing or in substantial question.

But no, we did not review in detail their cost-benefit analysis. They have an estimate that to try to do a system similar to CORN internally would cost $2.2 billion. We did not critique that. I think that this is certainly an alternative one would want to examine, including whether that really is the cost of what it would take to do the same internally. That is the kind of analysis that you would want to see. But we focused as I said on the justification in terms of the response time problem, and the growth, and the conversion problem, and the method for validating bidders' proposals.

Mr. CARR. Well, I think that that is all very helpful to us, and I think that we ought to continue to look at it. And I am going to be asking some of our FAA friends what they think that they are going to save in terms of money on this. I think that the GAO probably ought to do that too. And as you continue to look at this, let us ask ourselves what the net figure is. I can go buy a new car and I can tell you what it costs, but the real cost is what I saved in terms of maintenance on the old car and the value that the old car has on the market.

So I want to get in my own mind some kind of a real figure here of what we are talking about. Because $1.5 billion, I do not think that that is a real figure in terms of the cost benefit here measured only against what it buys as opposed to what you are going to get rid of.

Ms. HECKER. Absolutely.

Mr. CARR. I was also curious too. I have two statements, I guess one is a long and one is a short, right?

Ms. HECKER. Yes. I was asked to provide an abbreviated version.

Mr. CARR. Right. So I am looking. There is a strange change in the wording here that I would like you to help me with. On page one of the long statement the paragraph starts out, "FAA's Computer Resources Nucleus (CORN) project is one example of an inadequately justified general purpose procurement." In your short statement, however, that is changed to be, "FAA's $1.5 billion Computer Resources Nucleus (CORN) project is one example of an unjustified acquisition."

Do you see any difference between those two sentences?

Ms. HECKER. Well, the key perhaps is the word "procurement" and "acquisition" rather than "unjustified" and "inadequately justified". The acquisition is unique in this case, as you know, because it is to contract for services, not an acquisition of equipment. So one could read a nuance of distinction there. But we are aware in both statements that this is not an acquisition of equipment, but instead an acquisition or procurement of services.

Mr. CARR. Let me try again. I see two different sentences there, and I am trying to reconcile them.

Do you see any difference between them?

Ms. HECKER. I intended no change of nuance. It was an attempt to communicate in my opening sentence that we did not believe that CORN was justified—adequately justified.

Mr. CARR. And I think that your whole statement taken as a whole, I do not want to nit-pick with you here, your statement as a whole, I think, gets to the point. And you say it in both statements later on that, "In summary, while the CORN approach may have merit." I mean you are not judging the merit.

But I can ask you is that an unjustified acquisition or is this an inadequately justified acquisition, and you get two different meanings. And I think that your two different statements really had two different meanings, and I was just kind of curious about the spin of that second one. But anyway thanks.

Ms. HECKER. I would be happy to add a clarification.

Mr. CARR. Sure.

Ms. HECKER. It is a very important point that we add in the closing that the approach may have merit. The Government by and large has not been involved in contracting for services. Our Information Management and Technology Division has been looking government-wide at computer procurements and has found it difficult to identify a fully successful acquisition. Therefore, something has got to change about the way that the government procures, installs, and maintains major systems. It just has not worked very well across the government.

There is an innovative approach here to try a new way to do it. Our concern is that you have to know what your problems are before you can use this innovative approach with confidence that you are going to get what you are paying for.

Mr. **Carr**. So if I can try to summarize and then throw it back to the Chairman. They are doing something that generally is not done in government.

Ms. **Hecker**. Correct.

Mr. **Carr**. They may not have experience in plowing through this, and you may not have experience in evaluating it. You have identified a couple of problems that we ought to look at, and the FAA really ought to get sharper about the whole thing, and the jury is still out, right?

Ms. **Hecker**. Well, our draft does conclude that we do not think that they have a good basis for awarding.

Mr. **Carr**. It might be premature at this time.

Ms. **Hecker**. That is right. But the approach is one that the government probably ought to continue to study and DOT perhaps as well.

Mr. **Mead**. In fact, our draft report is with the agency for comment. And I understand that DOT and FAA will be commenting next Wednesday.

Mr. **Carr**. All right. Thank you.

CORN CONTRACT

Mr. **Lehman**. Thank you, Mr. Carr.

Ms. Hecker, what is your concern with CORN's steep growth requirement if the FAA only pays for what it actually uses? It is just like using attorneys and only paying for the legal time that they give you. So you are not buying anything physically, you are only contracting for time, is that not true?

Ms. **Hecker**. That is true, Mr. Chairman. The issue is that the contractor has to make a commitment to provide the entire 1300 percent increase in capacity. So in developing a pricing scheme and in developing their sizing of the system necessary to meet that contingency, they have to develop a pricing algorithm that will provide them the ability to recover the costs of meeting that full demand.

Even though DOT or FAA may only order very small portions, the price per increment will change. Therefore, the pricing algorithm would be designed in a way to assure that the vendors proposing to meet this requirement will recover their costs of the basic architecture that they have to put in place.

Mr. **Lehman**. You are paying for it but you will not own it.

Ms. **Hecker**. Well, it is true you will pay by increment, but you will pay more for the first increment and you will pay a little less for each additional increment, so the sizing is important. There is another factor about sizing that I might add. Clearly FAA recognized in developing this proposal that a growth of 1300 percent would limit competition. Clearly you would only be able to have those needs met by a few of the very largest vendors in the country. At one time there was an estimate that there may not be more than six. So competition is clearly a factor.

Mr. **Lehman**. Is this a ten-year contract?

Ms. **Hecker**. Pardon.

Mr. **Lehman**. How long is the contract?

Ms. **Hecker**. Five years with a one-year renewal options for an additional five years.

Mr. LEHMAN. How does this CORN procurement differ from other federal computer procurements that GAO has evaluated, was it a different process?

Ms. HECKER. The key distinction is that this is for procuring services and not equipment.

Mr. LEHMAN. But other federal programs have also contracted for services?

Ms. HECKER. Yes, but they usually do not involve contractor facilities dedicated to a single agency.

Mr. LEHMAN. Is this the first time that you are contracting for service on equipment not owned by the agency?

Ms. HECKER. Generally, contracted computer services are not received from a facility dedicated to a single agency.

Mr. LEHMAN. I understand.

The FAA advises the committee that they do not agree with your findings on CORN. This is a very complex technical issue.

What data processing qualifications do your auditors on this assignment have which could assure us that they are sufficiently expert to question the FAA's technical staff?

Ms. HECKER. That is a fair question. I would like to tell you a little bit about the staff that we have had on the assignment. Dr. Rona Stillman is here. She is GAO's Chief Scientist with over twenty years of experience in building and devising major systems in the government—particularly in DOD, which is as big as they come.

We have had a capacity management specialist who we sent down to Oklahoma City to help FAA tune their system. Clearly we had someone with very fine talents in the area. We have Mr. Willemssen and Mr. Finedore, who together have over twenty years of experience analyzing government programs.

And I, myself, have a degree in economics and have been with GAO five years and have 15 years in senior positions in various executive agencies.

Mr. CARR. It sounds like you should have the contract.

Ms. HECKER. It would be a more lucrative undertaking. [Laughter.]

Mr. LEHMAN. Bob will make you an offer that you cannot refuse.

Some people have expressed concern that the CORN software conversion is not sufficiently low risk to justify a fixed price contract as the FAA plans.

What is your view, and what evidence can you present to back it up?

Ms. HECKER. The concern about the conversion is one whole chapter of our report. The key to systems is the information that you have in them, the quality of that information, and how well they serve your user. What we found is that, in the course of putting this contract together and giving the information to bidders, FAA really knew very little about the broad range of their 270 systems.

In fact, it took them several tries to figure out how many systems they actually had. Not only did the count of the number of systems vary quite dramatically but the lines of code, which is a critical piece of information that had to be given to bidders to determine a conversion estimate, also varied from ten to eighteen million lines of code. So there were problems in understanding what the systems were and their size. There were also problems in determining the quality and extent of documentation FAA had for their systems.

Many times you get talented programers who build some of these systems. One problem that can occur is that they may not document the systems. Many of the major systems simply do not have complete documentation. Someone trying to plan a conversion cannot do a very good job if they do not have the documentation for the systems.

Mr. LEHMAN. Is this a low risk conversion, or a medium risk conversion, how would you classify this type of conversion?

Ms. HECKER. That is a very good question because there are GSA guidelines that say it is not a good idea to both enhance your software and convert them at the same time. In our discussions with FAA, what they say is that the conversion uses a low risk strategy because they are going to follow GSA guidelines. First they are just going to take the code that they have pulled together from these 270 programs and pay to convert them, and then they will figure out later which ones work, which ones they want to be integrated, and which ones they want redesigned.

Our concern is that the approach is actually a high risk strategy, because there is very little known about the quality of the applications. In fact a number of the assignments that Mr. Mead and others have undertaken have demonstrated very serious problems in some of the information systems, including data that cannot be relied upon, software packages that are very inefficiently drafted. To convert these could be a waste of money.

It is really very important in our view, and I think you were getting at this point earlier. It is important to determine how these systems should be integrated and what information is needed from them. That kind of analysis has not preceded this conversion effort.

Mr. LEHMAN. This is basically an attempt to centralize information, is that not right?

Ms. HECKER. Yes, it is. After everything is rehosted, FAA will figure out which ones they really need, and which ones have to be upgraded.

Mr. LEHMAN. But is there not, in general, even in the private sector a trend toward decentralized information into the regions and the local areas and more or less self sustaining the outlying information systems?

Ms. HECKER. That is a very good point.

Mr. LEHMAN. Nordstrom I think, one of the most successful retailers, is now moving in that direction to the best of my understanding.

Ms. HECKER. That is true, there is an important trend toward end user development and support with an integrated intelligent basis for integrating all of your systems. What is interesting is that there is an additional computer procurement in FAA right now which is about $700-plus million to put very powerful work stations on the desks of FAA staff all around the country.

And there is little analysis, which causes us some concern, about the relationship between CORN and the services that would come largely from it, and the extraordinary computing power being put at the desk of individuals around the country.

Mr. LEHMAN. Do you have additional information?

Ms. STILLMAN. Hopefully I can add a little bit on the distribution versus centralization issue. Over the past ten to fifteen years, what we have seen in computing is much more powerful and cheaper small computers in addition to cheaper and more powerful big computers and less expensive communications. So we now have options for computer architecture that allow you either to distribute or to centralize. The challenge to people putting in new systems today is to make the right choice.

So there is not any one answer for a given system. For example, there are administrative systems that we see in government, such as payroll and personnel that are being consolidated, while other systems for command and control are being distributed.

The point is that you need a more careful and more thoughtful analysis before you decide what architecture you pick, because you have more viable options today.

Mr. LEHMAN. Something should be done apparently to improve the information system.

Ms. HECKER. I think that the place to begin on the performance side is to identify the causes of the perceived response time problems. Response time is a very important factor. People lose patience and it wastes their time. FAA also needs to get a much better handle on the performance of its current system and what kind of growth is expected.

On the information management side, it needs a much better picture of what information and systems are needed and and how that compares to the programs and applications that are currently in place.

MODE S

Mr. LEHMAN. We will move to Mode S.

Ms. Hecker, did your review of Mode S uncover that FAA knew additional development was required when they awarded the production contract?

Ms. HECKER. Mode S goes back twenty years, as I said in my statement. In 1969, the concept was proposed. In 1973 I believe the concept was tested by Lincoln Labs. In 1976 Texas Instruments was awarded a contract to develop a prototype. By 1980, the FAA had a working prototype. By the time FAA awarded the production contract in 1984, however, the requirements had changed. For example, instead of being able to track about 400 aircraft, FAA increased it to 700 aircraft. The contractor at that time warned FAA that new hardware and new software would be needed. Ignoring that guidance, FAA went ahead and awarded a production contract, and that really has been the source of the problems ever since.

Mr. LEHMAN. Now that we are in this mess, what alternatives exist to deal with the current Mode S problems and to satisfy long term needs for data communications? What do you do if Mode S goes down the tube?

Ms. HECKER. Well, we are not proposing that the original 137 systems be thrown out. We do think that there is a need for the basic functions contained in Mode S, which are a monopulse format to improve accuracy, discrete addressing to eliminate a lot of the interference with current radar, and a communication or data link to allow pilots and controllers to exchange data.

So we think the concept is needed, but there have been extremely serious problems in the performance of the current contract. What we are recommending is that based on the cure letter that was given to the contractor in June of 1989, a very serious examination has to proceed about what precise alternatives are available in terms of potentially canceling the contract versus what kind of mechanism might provide the government some hope of getting a workable system.

But we do think that FAA is wise to continue to proceed with the Mode S concept, but it needs to very seriously examine the contractor's performance.

Mr. LEHMAN. Apparently termination is not at this moment a viable option.

Ms. HECKER. Termination is an option that we think ought to be weighed. We recommend in our draft report that the Secretary conduct an evaluation and consider terminating the contract. We are not giving up on the concept.

Mr. LEHMAN. I see.

Ms. HECKER. Maybe the best course for the government.

Mr. LEHMAN. I understand, continue with the concept but do it differently.

Ms. HECKER. Exactly.

AAS CONTRACT

Mr. LEHMAN. The AAS contract has some fixed price items and some cost plus items. Generally, fixed price is preferred when it can be justified, because it minimizes the government's risk of incurring cost overruns. However, the Committee is advised that FAA has not required the prime contractor to report costs by contract line item number, thereby making it almost impossible to tell whether we are paying more than required under this contract.

Is this a good business practice, and is it something that we should worry about?

Mr. WILLEMSSEN. We are concerned about it, but FAA is also concerned and is starting to take action to try to remedy the deficiency. They are working now with IBM to try to have costs reported by contract line item, so that there can be an adequate comparison of what is in the contract against what has been spent. It has been a difficult process to date.

Mr. LEHMAN. Mr. Wolf.

Mr. WOLF. I have no questions.

Mr. LEHMAN. Mr. Coughlin.

AAS AND TRACONS

Mr. COUGHLIN. Thank you, Mr. Chairman. I have just one follow-up question on the Advanced Automation System and the most heavily used TRACONs.

Is the FAA moving now, you said they are moving, temporarily at least, to adopt those most heavily used TRACONs to increased capacity or converting to the AAS system? Are they moving in the right direction as far as you can see now in terms of those TRACONs?

Ms. HECKER. Our report last year had several recommendations to remedy the problems experienced by busy TRACONs. In response, FAA has taken some actions to identify the TRACON facilities with the most serious problems and has transferred some equipment to the TRACONs most in need. Solid state memories, for example, have been sent to some of the busiest systems, such as Chicago, Dallas, and Los Angeles where the systems are under the most stress. So in terms of the immediate issue, we think that there has been some response.

A second recommendation of ours was to implement a capacity planning and performance management program. We received FAA's response to the report about 2 months ago. The response discusses a performance monitoring tool that FAA has put in place. However, this is not an overall capacity management program that FAA can use to manage its TRACON systems. So we have some questions as to whether FAA has the kind of information to determine whether its computers are at or near capacity and potentially lose data. It is not entirely the kind of program that we had in mind.

Finally the most important recommendation that we made in last year's report was the one that I discussed earlier today on FAA evaluating alternative systems to meet the requirements of its busy TRACONs for the next 10 years. FAA really needs to look carefully at this recommendation in view of the expanding time frame in which these TRACONs need to operate. FAA's current plan to address this issue, developed in 1987, is to basically upgrade systems with antiquated processors to the system's maximum design limit.

Well, in 1987, the expected date for AAS to be in place was in the mid-1990s. It now looks like the new terminal systems may not be installed until at least the year 2000.

Mr. COUGHLIN. The AAS?

Ms. HECKER. The complete AAS will not be implemented until after the year 2000. So continuing with the existing TRACON systems with their old computers is a very inferior long-term solution. Without a very good projection of needs, the length of time the system is going to have to operate, and the extent of capacity problems, we do not believe that FAA can have much confidence that the actions that they are taking now will prevent us from being confronted with terminal control systems that may not have sufficient capacity by the late-1990s.

We are therefore firmly recommending a major evaluation of other alternatives to meet TRACON needs. There are other alternatives. For example, FAA can alter the schedule of AAS deployment and potentially deliver a modified system to upgrade the needs of the TRACONs by the mid-1990s. There are also other alternatives that have been suggested.

Mr. COUGHLIN. And is that going to cause a duplication then if you do an interim modification of those TRACONs and then have the final AAS system come in around the turn of the century?

Ms. HECKER. It could.

Mr. COUGHLIN. You think an unnecessary duplication?

Ms. HECKER. Not necessarily. We think that there is a fair amount of concern regarding TRACON systems that lead us to believe that an examination of alternatives is warranted. These problems experienced at TRACONs are not minor. For example, the controllers have lost the information from their screens. It literally disappears. So the effect of these capacity overloads on these TRACON computers is very serious for controllers and it impairs their ability to safely separate traffic.

In fact the steps that FAA is taking—producing old processors to expand systems to their limit—will not even be in place until 1992 or 1993. We think that there is enough urgency, that longer term alternatives be examined.

Now as I mentioned, with some adjustment of the AAS schedule, it may be that the same console displays can be produced without the rather complicated development effort of automating the flight strips. That is a large part of the software development of the new Advanced Automation System for the TRACONs—to automate the flight strips which controllers now handle manually.

There is a possibility and I have discussed it with senior officials at IBM and FAA that you would not be putting in a different system, but you would put in a less fully capable TAAS or Terminal Advanced Automation System, and then just upgrading it when the other features of the full AAS are ready.

Mr. COUGHLIN. We are a little bit like the site use of satellites and moving to that in the same kind of quandary, are we not?

Mr. MEAD. I would like to amplify on Ms. Hecker's comment there. I think that the point that you are raising is an issue that is quite pervasive. I do not think that it is just linked to AAS, but it is linked in fact to numerous other major NAS Plan systems. To the extent that those systems slip or that the dates that are now set are patently unrealistic, you will hear talk over the next couple of years of the need for additional Interim Support Projects to bridge the gap.

And that is why we are reasonably certain that there is more to come and also why we are hopeful that the Capital Investment Plan to be delivered here later this year by FAA, will address those.

SEI CONTRACTOR

Mr. COUGHLIN. On another subject, in 1984 the FAA selected Martin Marietta to perform duties as the systems engineering and integration contractor, FAA's technical advisor for the NAS plan. How do they fit into all of this?

Mr. MEAD. We think the Martin Marietta folks have done a pretty good job. In fact, in 1984 when they first entered the scene, one of their first undertakings was to look at all of these projects, many of which were at the time disconnected. There were not a lot of interfaces between these projects, all of which ultimately had to work together.

Martin Marietta went about the task of identifying the different interfaces that were not present in the NAS Plan. Hence many of the new projects that we have talked about so frequently stem from the identification of those interfaces that were not there before Martin Marietta arrived on the scene.

Allen, do you want to amplify on that?

Mr. LI. The only other point that I would like to add is that I think your question infers a question: What is the value added that the SEIC gave, or why are we in such a quandary now even though we spent so much money?" I think that is a good question. The SEIC is hamstrung by the fact that, when it came on board, the design for NAS was already established. So what they have had to do, and what Mr. Mead is trying to allude to, is the fact that these individual systems have to talk to one another, and that really has been the SEIC's greatest contribution to FAA to date.

Mr. MEAD. One concern we raised in our prepared statement, and I did not allude to it in my summary, is that there is a new support contractor who has entered the scene. I did not dwell on that in the statement, because I think that issue is also of concern to FAA. We are concerned about the number of support contractors and whether there is the potential for them duplicating each other's roles.

Mr. COUGHLIN. That was my next question. With the FAA's growing use of support contractors, how will the overall role of the SEIC be affected?

Mr. MEAD. We are quite concerned about that. We are concerned that there will be duplication. In fact the job task descriptions for Martin Marietta and the additional support contractor are very similar in some rather important respects.

Mr. COUGHLIN. Are they not supposed to be doing exactly this?

Mr. MEAD. That is the way that it would look on paper. That is the heart of the concern, sir.

ADEQUATE TRUST FUND REVENUE

Mr. COUGHLIN. Just one final series of questions if I might. The Comptroller General has spoken of the dangers of using reserves of the Aviation Trust Fund as an excuse to avoid other deficit reduction actions. However, if the user fees stay at their current levels, FAA may need to scale back its modernization effort.

Over the last decade, has the revenue in the Airport and Airway Trust Fund been more than adequate to meet annual facilities and equipment outlays?

Mr. MEAD. Yes.

Mr. COUGHLIN. Would denial of the Administration proposal to increase user fees require FAA to reassess its approach to modernization?

Mr. MEAD. Not until 1994 or thereabouts by our calculations. If you were prepared to dig deeply into the so-called surplus and also prepared to fund from the trust fund operations and maintenance, our calculations suggest that without an increase in the user fees you could make due until about 1994.

Mr. COUGHLIN. How much of the FAA's operation should come from the trust fund?

Mr. MEAD. The Administration has recommended in the neighborhood of 85 percent of operations, and the other 15 being I guess public uses. We do not have any quarrel with that.

Mr. **Coughlin**. You think that 85 percent would be right?

Mr. **Mead**. Yes.

Mr. **Coughlin**. You are saying that if you used 85 percent that you would still be all right until 1994 funding the F&E operation?

Mr. **Mead**. Yes. It would draw down the balance substantially. We are also supportive of using the trust fund for operations and maintenance. And that has been a position of ours for several years.

Mr. **Coughlin**. That is 85 percent?

Mr. **Mead**. In that neighborhood. We do not have any quarrels with that. We have done no independent studies on the 85 percent study.

Mr. **Coughlin**. So you would oppose the penalty clause?

Mr. **Mead**. I am not prepared to say that I would oppose the penalty clause. I am prepared to say that I think that the time has come to revisit the penalty clause and to look at operations and maintenance of the system for what it is. The facts are that the trust fund was initially envisioned as principally a capital investment document. But the operations and maintenance expenditures are quite critical to maintain, preserve, and enhance the capital investments that we are making.

I think that the trust fund would also provide a more stable and reliable funding source for O&M. Certainly right now it is fair game if you are looking to the general fund to finance O&M, that the O&M at FAA compete with other federal programs.

Mr. **Carr**. Would the gentleman yield?

Mr. **Coughlin**. Yes.

Mr. **Carr**. Conceding the point that operations is in support of some of those capital items purchased by the trust fund, do you think it is possible to identify how much of the operating budget is for that maintenance?

Mr. **Mead**. No. I am not prepared to say yes that would be possible. I would have to do an analysis.

Mr. **Carr**. We already do about 25 percent out of the trust fund for operating and maintenance.

Are you saying that 25 percent of O&M for FAA is too low in terms of maintenance of the system?

Mr. **Mead**. Well, it varies so dramatically, Mr. Carr. The way that this penalty clause operates it is kind of strange. Some years you might spend 20 or 25 percent of the total O&M budget, and I think that it can range up to well over 50 percent.

Mr. **Carr**. It can but it has not. I mean from the figures that we have been using, it is around 25 percent plus or minus.

Would that not be a fair price, well would it be a fair price for O&M? I mean some of us are really opposed to financing the FAA out of the trust fund. That is just a shift.

Mr. **Mead**. I understand. It is a somewhat different issue than what I am suggesting. I am suggesting that as long as the general fund is looked to to finance the O&M at FAA, and as long as the general fund is so constrained and there are so many demands placed on it, that it is fair game for someone to argue that the FAA work forces should be balanced to compete with other federal programs for funds.

Mr. **Carr**. I suppose in that sense that anything is fair game but go ahead. Thank you.

Mr. **Coughlin**. You are saying that you would rather see the FAA compete less by using a larger proportion from the trust fund for operations?

Mr. **Mead**. Yes, sir.

Mr. **Coughlin**. Thank you, Mr. Chairman.

Mr. **Lehman**. Thank you, Mr. Coughlin.

I want to thank the people from GAO for being here today and providing very valuable testimony. We will recess for five minutes while the GAO people are able to swap places with the FAA people.

FAA INTRODUCTION

Mr. **Lehman**. The Subcommittee will reconvene. Our principal witness for the Federal Aviation Administration is the Administrator, James B. Busey. We will be pleased to hear your statement at this time. You may read it, or if you would prefer to summarize it, we shall insert your entire statement in the record.

Mr. **Busey**. Thank you, Mr. Chairman, and members of the subcommittee. I appreciate the opportunity to appear before you today to discuss the FAA fiscal year 1991 budget request.

Let me introduce the FAA witnesses. Mr. Nicholas Stoer, who is the Director of Budget; Mr. Greg Walden, Chief Counsel; Mr. Leonard Griggs, Jr., Assistant Administrator for Airports; Mr. Dale E. McDaniel, Deputy Assistant Administrator for Policy, Planning, and International Aviation; Mr. Charles Huettner, Deputy Assistant Administrator for Aviation Safety; William Pollard, Associate Administrator for Air Traffic; Brooks Goldman, Associate Administrator for Administration; Monte Belger, Associate Administrator for Aviation Standards.

And Arnold Aquilano, Associate Administrator for Airway Facilities; Herbert McLure, Associate Administrator for Human Resource Management; Anthony Broderick, Associate Administrator for Regulation and Certification; and Mr. Marty Pozesky, the Associate Administrator for System Engineering and Development.

FAA OPENING STATEMENT

We all appreciate the opportunity, sir, to appear before you today to discuss the Federal Aviation Administration's fiscal year 1991 budget request.

Our budget request for the forthcoming year has been carefully formulated to reflect the realities of the environment with which the FAA must operate. Today that aviation environment is far different than that of a decade ago. Terrorism, aging aircraft, system capacity, and modernization are issues with which we must deal on a daily basis.

And I can share with you that in my short period of time aboard that I have come to learn that I ~~have a lot of~~ assistance, and a lot of advice, and a lot of counsel, some of which we have heard for the last couple of hours.

One constant however has been system growth. By the year 2000, air travel will nearly double its 1980 level. Just since airline deregulation began in 1978, the number of airline passengers has increased about 73 percent, and we will continue to be confronted with the challenges that growth brings us.

What does this growing demand for air travel mean to the FAA? It means retraining our specialized work force to operate, maintain, and support the new technology that we must develop and install. It means expanding airport capacity. It means removing federal restrictions on local airports' ability to raise revenue and encouraging more public and private projects.

It means increasing security to counter the growing threat of terrorism. It means expanding the FAA's inspection force to respond to aging aircraft concerns and importantly it means committing significant resources to meet these necessary objectives.

OPERATIONS

For fiscal year 1991, we are seeking an Operations appropriation level of $4.1 billion, only a seven percent increase over fiscal year 1990. The majority of our requested increase of six percent is needed just to sustain current levels of employment and services.

The remaining one percent increase recognizes the pressing need for added resources to meet increased demands and allow program growth over fiscal year 1990 to include a 495 employment increase in the air traffic controller work force, 200 more field maintenance technicians, 300 additional safety inspectors and 170 new security specialists.

We have very little flexibility in our operations appropriation since more than 73 percent of it is made up of payroll costs. Eight out of nine people in our operations work force are in safety related jobs or directly manage those personnel or programs, and the demands placed on them are significant.

In fiscal year 1991, each day they will handle more than 176,000 take-offs and landings, 132,000 instrument operations, and provide 123,000 flight services. They will conduct 120,000 student weeks of training. They will operate and maintain over 25,000 aviation facilities. They will perform more than 30,000 security inspections. They will conduct over 5000 accident prevention seminars. They will perform almost 300,000 safety inspections of airlines and other aviation activities licensed by the FAA.

They will administer our airports' certification and grants programs. They will provide essential support services that facilitate the performance of our critical safety and operational functions.

FACILITIES AND EQUIPMENT

In our fiscal year 1991 Facilities and Equipment appropriation, we are seeking $2.5 billion. This 45 percent increase over fiscal year 1990, which is needed to fund the acquisition associated with the modernization of our air transportation system and the installation of new technology, clearly reflects the importance of these capital improvements to aviation and the nation's economy.

At the same time that we are seeking additional funding, it is important that we in the FAA ensure that we are getting the maximum benefit from every dollar spent. Improving the acquisition process, and you heard a lot of criticism of that process in the past two hours, improving that process to promote greater efficiency and economy from top to bottom has been one of my major goals from day one as the FAA Administrator some nine months ago.

In February, I announced a realignment of the agency's acquisition system to deal more efficiently with the increased spending levels needed over the next five years. This realignment establishes an independent capability to oversee the acquisition process, and strengthens the program management function by removing layers of intervening management. And it brings greater focus, discipline, and efficiency into the acquisition process. And it enhances our design capabilities to include stronger relationships between research and development and facilities and equipment programs.

By empowering our program managers and holding them accountable, I am very confident that the FAA can do and will do a better job of bringing major equipment on line, on time and on cost schedule.

RESEARCH, ENGINEERING AND DEVELOPMENT

Our Research, Engineering and Development programs deal with some of the most sensitive, difficult, and publicly discussed issues of our time, counter-terrorism, explosive detection technology, aging aircraft, and air traffic control technology to help us deal with bottlenecks that affect almost a half billion passengers a year. It is clear that more must be done in these critical areas. Therefore we are requesting $190 million for our Research, Engineering and Development programs, which would provide a 12 percent increase over fiscal year 1990.

AIRPORT GRANTS PROGRAM

Our request for the Airport Grants Program is $1.5 billion, amounting to a 5.3 percent increase over fiscal year 1990. This amount will fund formula driven grants for airport development projects at commercial airports, as well as grants to states to improve smaller airports.

The request assumes $196 million will be set aside for capacity, safety, security, and noise projects. This funding will be directed to primary commercial airports and their associated relievers for projects which have a significant effect on our overall national air transportation system capacity. As I indicated earlier, system capacity is a major challenge to us all.

REAUTHORIZATION

To put these major appropriation requests into context, I want to address how we propose to finance them. As you know, the Secretary submitted the FAA's five year reauthorization bill to Congress in March of this year. I believe its speedy enactment this summer is key to meeting the aviation challenges of the 1990s. The bill authorizes higher funding levels in vital program areas and allows a more flexible and dynamic approach in identifying and planning for capital investment needs in an era of rapid growth and change.

The bill's principal innovation perhaps is a provision that would authorize local airports to collect a passenger facility charge or head tax of up to $3 per passenger. This would pave the way for local governments to respond more effectively to capacity constraints. We estimate the PFCs which are common in some 138 foreign countries could generate as much as one billion annually at United States airports. Airport needs continue to grow. Removing the federal barrier to local passenger fees would help finance those needs.

The bill also calls for an increase in the amount of the FAA's total budget funded out of the trust fund from the current level of about 57 percent to a level of 85 percent, and would finance this through increased user fees. This is consistent with a series of cost allocation studies, including one by the Congressional Budget Office, which show that 85 percent of our costs can be directly attributed to specific users. Since 1982, the trust fund has financed only about 57 percent of the FAA's budget. During this time period, the trust fund has funded only about 24 percent of the cost to operate and maintain the aviation system in our Operations account.

We think that the operation of the modernized aviation system is just as important as the purchase and installation of new equipment. After all, the users of the system would receive no benefit from the installation of new technology if that technology is not certified, maintained, and operated for their use.

Our proposal is based on the premise that those who directly benefit from aviation services have a responsibility for paying for the cost of those services. And this does not mean as some might allege that we do not believe that aviation benefits society as a whole. Clearly, it does. Aviation produces immense benefits. But public benefit does not equate to public subsidy. Our proposal therefore places responsibility for funding FAA activities on those who directly use them and benefit from them.

In closing, Mr. Chairman, I want to recognize the contribution which you and the members of the subcommittee have made to the safety and efficiency of our air transportation system. I look forward to working closely with the members of the subcommittee and urge the subcommittee to act favorably on the FAA's appropriation request for fiscal year 1991. We think that the amounts we are requesting are absolutely necessary for the FAA to fulfill its significant safety responsibilities on behalf of the American traveling public.

Thank you, sir. And we stand ready now to deal with your questions.

[The statement of Admiral James B. Busey follows:]

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
STATEMENT OF THE HONORABLE JAMES B. BUSEY
ON THE FISCAL YEAR 1991 BUDGET REQUEST
BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON TRANSPORTATION
APRIL 18, 1990

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

I APPRECIATE THE OPPORTUNITY TO APPEAR BEFORE YOU TODAY TO DISCUSS THE FEDERAL AVIATION ADMINISTRATION'S FISCAL YEAR 1991 BUDGET REQUEST.

OUR BUDGET REQUEST FOR THE FORTHCOMING FISCAL YEAR HAS BEEN CAREFULLY FORMULATED TO REFLECT THE REALITIES OF THE ENVIRONMENT WITH WHICH THE FAA MUST OPERATE. TODAY, THAT AVIATION ENVIRONMENT IS FAR DIFFERENT THAN THAT OF A DECADE AGO--TERRORISM, AGING AIRCRAFT, SYSTEM CAPACITY AND MODERNIZATION ARE ISSUES WITH WHICH WE MUST DEAL ON A DAILY BASIS.

ONE CONSTANT, HOWEVER, HAS BEEN SYSTEM GROWTH. BY THE YEAR 2000, AIR TRAVEL WILL NEARLY DOUBLE ITS 1980 LEVEL. JUST SINCE AIRLINE DEREGULATION BEGAN IN 1978, THE NUMBER OF AIRLINE PASSENGERS HAS INCREASED ABOUT 73 PERCENT; AND WE WILL CONTINUE TO BE CONFRONTED WITH THE CHALLENGES THAT GROWTH BRINGS.

WHAT DOES THIS GROWING DEMAND FOR AIR TRAVEL MEAN TO THE FAA? IT MEANS RETRAINING OUR SPECIALIZED WORK FORCE TO OPERATE, MAINTAIN, AND SUPPORT THE NEW TECHNOLOGY THAT WE MUST DEVELOP AND INSTALL. IT MEANS EXPANDING AIRPORT CAPACITY. IT MEANS REMOVING FEDERAL RESTRICTIONS ON LOCAL AIRPORTS' ABILITY TO RAISE REVENUE AND ENCOURAGING MORE PUBLIC/PRIVATE PROJECTS. IT MEANS INCREASING SECURITY TO COUNTER THE GROWING THREAT OF TERRORISM. IT MEANS

EXPANDING THE FAA'S INSPECTION FORCE TO RESPOND TO AGING AIRCRAFT CONCERNS AND, IMPORTANTLY, IT MEANS COMMITTING SIGNIFICANT RESOURCES TO MEET THESE NECESSARY OBJECTIVES.

FOR FISCAL YEAR 1991, WE ARE SEEKING AN OPERATIONS APPROPRIATION LEVEL OF $4.1 BILLION -- ONLY A 7 PERCENT INCREASE OVER FISCAL YEAR 1990. THE MAJORITY OF OUR REQUESTED INCREASE -- IN FACT, 6 PERCENT -- IS NEEDED JUST TO SUSTAIN CURRENT LEVELS OF EMPLOYMENT AND SERVICES. THE REMAINING 1 PERCENT INCREASE RECOGNIZES THE PRESSING NEED FOR ADDED RESOURCES TO MEET INCREASED DEMANDS AND ALLOWS PROGRAM GROWTH OVER FISCAL YEAR 1990 TO INCLUDE A 495 EMPLOYMENT INCREASE IN THE AIR TRAFFIC CONTROLLER WORKFORCE, 200 MORE FIELD MAINTENANCE TECHNICIANS, 300 ADDITIONAL SAFETY INSPECTORS AND 170 NEW SECURITY SPECIALISTS.

WE HAVE VERY LITTLE FLEXIBILITY IN OUR OPERATIONS APPROPRIATION SINCE MORE THAN 73 PERCENT OF IT IS MADE UP OF PAYROLL COSTS. EIGHT OUT OF NINE PEOPLE IN OUR OPERATIONS WORK FORCE ARE IN SAFETY RELATED JOBS OR DIRECTLY MANAGE THOSE PERSONNEL OR PROGRAMS, AND THE DEMAND PLACED ON THEM IS SIGNIFICANT. IN FISCAL YEAR 1991, EACH DAY THEY WILL HANDLE MORE THAN 176,000 TAKE OFFS AND LANDINGS, 132,000 INSTRUMENT OPERATIONS, AND PROVIDE 123,000 FLIGHT SERVICES; THEY WILL CONDUCT 120,000 STUDENT WEEKS OF TRAINING; THEY WILL OPERATE AND MAINTAIN OVER 25,000 AVIATION FACILITIES; THEY WILL PERFORM MORE THAN 30,000 SECURITY INSPECTIONS AND ASSESSMENTS; THEY WILL CONDUCT OVER 5,000 ACCIDENT PREVENTION SEMINARS AND PERFORM ALMOST 300,000 SAFETY INSPECTIONS OF AIRLINES AND OTHER AVIATION ACTIVITIES LICENSED BY THE FAA; THEY WILL ADMINISTER OUR AIRPORTS CERTIFICATION AND GRANTS PROGRAMS; AND THEY WILL PROVIDE ESSENTIAL SUPPORT SERVICES THAT FACILITATE THE PERFORMANCE OF OUR CRITICAL SAFETY AND OPERATIONAL

FUNCTIONS.

FOR OUR FISCAL YEAR 1991 FACILITIES AND EQUIPMENT APPROPRIATION, WE ARE SEEKING $2.5 BILLION. THIS 45 PERCENT INCREASE OVER FISCAL YEAR 1990, WHICH IS NEEDED TO FUND THE ACQUISITION ASSOCIATED WITH THE MODERNIZATION OF OUR AIR TRANSPORTATION SYSTEM AND THE INSTALLATIONS OF NEW TECHNOLOGY, CLEARLY REFLECTS THE IMPORTANCE OF THESE CAPITAL IMPROVEMENTS TO AVIATION AND THE NATION'S ECONOMY. MAJOR NATIONAL AIRSPACE SYSTEM (NAS) PLAN PROGRAMS TARGETED FOR FUNDING IN FISCAL YEAR 1991 INCLUDE: A SUBSTANTIAL INCREASE FOR THE ADVANCED AUTOMATION SYSTEM CONTRACT; THE VOICE SWITCHING AND CONTROL SYSTEM, DESIGNED TO MODERNIZE THE SYSTEM'S OUTDATED COMMUNICATIONS NETWORK; TERMINAL DOPPLER WEATHER RADAR AND LONG RANGE RADAR, DESIGNED TO IMPROVE WEATHER SERVICES AND REPLACE OBSOLETE EN-ROUTE RADAR; AND THE COMPUTER RESOURCE NUCLEUS PROJECT THAT WILL ALLOW US TO MEET OUR EXPANDED INFORMATION NEEDS OF TODAY AND TOMORROW.

APPROPRIATION OF OUR FULL REQUEST FOR THE FACILITIES AND EQUIPMENT ACCOUNT IS PARTICULARLY VITAL IN FISCAL YEAR 1991 SINCE WE ARE ENTERING THE HOME STRETCH ON IMPLEMENTATION OF MAJOR NATIONAL AIRSPACE SYSTEM PLAN PROJECTS. IN THE INTERIM, WE NEED TO CONTINUE TO MAKE SHORT-TERM IMPROVEMENTS IN THE CURRENT SYSTEM TO ENSURE THAT DEMAND DOESN'T OUTSTRIP CAPACITY IN THE SHORT RUN. WE NEED TO CONTINUE SPENDING AT OR NEAR THE FISCAL YEAR 1991 REQUEST LEVEL OVER THE NEXT FIVE YEARS IF WE ARE GOING TO STAY AHEAD OF THE STEADILY INCREASING DEMANDS OF THE AIR TRANSPORTATION INDUSTRY AND ASSURE ACCESS TO ALL SYSTEM USERS. WE ALSO MUST CONTINUOUSLY LOOK AHEAD. AND, WE ARE FAR ALONG IN COMPLETING THE DEVELOPMENT OF A MORE COMPREHENSIVE AND FLEXIBLE CAPITAL INVESTMENT PLAN FOR THE POST-NAS PLAN ERA. OUR SCHEDULE CALLS FOR PUBLISHING

THAT PLAN THIS SUMMER.

AT THE SAME TIME THAT WE ARE SEEKING ADDITIONAL FUNDING, IT IS IMPORTANT THAT WE IN THE FAA ENSURE THAT WE ARE GETTING THE MAXIMUM BENEFIT FROM EVERY DOLLAR SPENT. IMPROVING THE ACQUISITION PROCESS TO PROMOTE GREATER EFFICIENCY AND ECONOMY FROM TOP TO BOTTOM HAS, THEREFORE, BEEN ONE OF MY MAJOR GOALS FROM DAY ONE AS FAA ADMINISTRATOR. IN FEBRUARY, I ANNOUNCED A REALIGNMENT OF THE AGENCY'S ACQUISITION SYSTEM TO DEAL MORE EFFICIENTLY WITH THE INCREASED SPENDING LEVELS NEEDED OVER THE NEXT FIVE YEARS. THIS REALIGNMENT ESTABLISHES AN INDEPENDENT CAPABILITY TO OVERSEE THE ACQUISITION PROCESS; STRENGTHENS THE PROGRAM MANAGEMENT FUNCTIONS; BRINGS GREATER FOCUS, DISCIPLINE, AND EFFICIENCY INTO THE ACQUISITION PROCESS; AND ENHANCES THE FAA'S SYSTEM DESIGN CAPABILITIES TO INCLUDE STRONGER RELATIONSHIPS BETWEEN RESEARCH AND DEVELOPMENT AND FACILITIES AND EQUIPMENT PROGRAMS. BY EMPOWERING PROGRAM MANAGERS AND HOLDING THEM ACCOUNTABLE, I AM CONFIDENT THAT THE FAA WILL DO A BETTER JOB OF BRINGING MAJOR EQUIPMENT ON LINE FASTER AND CHEAPER.

NOW I WOULD LIKE TO MENTION BRIEFLY OUR REQUESTS IN TWO OTHER VERY IMPORTANT APPROPRIATION ACCOUNTS: RESEARCH, ENGINEERING AND DEVELOPMENT, AND AIRPORT GRANTS.

OUR RESEARCH, ENGINEERING AND DEVELOPMENT PROGRAMS DEAL WITH SOME OF THE MOST SENSITIVE, DIFFICULT, AND PUBLICLY DISCUSSED ISSUES OF OUR TIME -- COUNTER-TERRORISM AND EXPLOSIVE DETECTION TECHNOLOGY, AGING AIRCRAFT, AND AIR TRAFFIC CONTROL TECHNOLOGY TO HELP US DEAL WITH BOTTLENECKS THAT AFFECT ALMOST A HALF BILLION PASSENGERS A YEAR. IT IS CLEAR THAT MORE MUST BE DONE IN THESE

CRITICAL AREAS. THEREFORE, WE ARE REQUESTING $190 MILLION FOR OUR RESEARCH, ENGINEERING AND DEVELOPMENT PROGRAMS, WHICH WOULD PROVIDE A 12 PERCENT INCREASE OVER FY 1990.

OUR REQUEST FOR AIRPORT GRANTS IS $1.5 BILLION, AMOUNTING TO A 5.3 PERCENT INCREASE OVER FISCAL YEAR 1990. THIS AMOUNT WILL FUND FORMULA-DRIVEN GRANTS FOR AIRPORT DEVELOPMENT PROJECTS AT COMMERCIAL AIRPORTS, AS WELL AS GRANTS TO STATES TO IMPROVE SMALLER AIRPORTS. THE REQUEST ASSUMES $196 MILLION FOR CAPACITY, SAFETY, SECURITY, AND NOISE PROJECTS. THIS FUNDING WILL BE DIRECTED TO PRIMARY COMMERCIAL AIRPORTS AND THEIR ASSOCIATED RELIEVERS FOR PROJECTS WHICH HAVE A SIGNIFICANT EFFECT ON OUR OVERALL NATIONAL AIR TRANSPORTATION SYSTEM CAPACITY. AS I INDICATED EARLIER, SYSTEM CAPACITY IS A MAJOR CHALLENGE TO US ALL.

TO PUT THESE MAJOR APPROPRIATION REQUESTS INTO CONTEXT, I WANT TO ADDRESS HOW WE PROPOSE TO FINANCE THEM. AS YOU KNOW, THE SECRETARY SUBMITTED OUR FIVE-YEAR REAUTHORIZATION BILL TO CONGRESS ON MARCH 19. I BELIEVE ITS SPEEDY ENACTMENT THIS SUMMER IS KEY TO MEETING THE AVIATION CHALLENGES OF THE 1990'S. THE BILL AUTHORIZES HIGHER FUNDING LEVELS IN VITAL PROGRAM AREAS AND ALLOWS A MORE FLEXIBLE AND DYNAMIC APPROACH IN IDENTIFYING AND PLANNING FOR CAPITAL INVESTMENT NEEDS IN AN ERA OF RAPID GROWTH AND CHANGE.

PERHAPS THE BILL'S PRINCIPAL INNOVATION IS A PROVISION THAT WOULD AUTHORIZE LOCAL AIRPORTS TO COLLECT A PASSENGER FACILITY CHARGE (PFC), OR "HEAD TAX," OF UP TO $3 PER PASSENGER. THIS WOULD PAVE THE WAY FOR LOCAL GOVERNMENTS TO RESPOND MORE EFFECTIVELY TO CAPACITY CONSTRAINTS. WE ESTIMATE THE PFC'S --

WHICH ARE COMMON IN SOME 138 FOREIGN COUNTRIES -- COULD GENERATE AS MUCH AS $1 BILLION ANNUALLY AT UNITED STATES AIRPORTS. AIRPORT NEEDS CONTINUE TO GROW. REMOVING THE FEDERAL BARRIER TO LOCAL PASSENGER FEES WOULD HELP FINANCE THOSE NEEDS.

THE BILL ALSO CALLS FOR AN INCREASE IN THE AMOUNT OF THE FAA'S TOTAL BUDGET FUNDED OUT OF THE TRUST FUND FROM THE CURRENT LEVEL OF ABOUT 57 PERCENT TO A LEVEL OF 85 PERCENT, AND WOULD FINANCE THIS THROUGH INCREASED USER FEES. THIS IS CONSISTENT WITH A SERIES OF COST ALLOCATION STUDIES, INCLUDING ONE BY THE CONGRESSIONAL BUDGET OFFICE, WHICH SHOW THAT 85 PERCENT OF OUR COSTS CAN BE DIRECTLY ATTRIBUTED TO SPECIFIC USERS. SINCE 1982, THE TRUST FUND HAS FINANCED ONLY ABOUT 57 PERCENT OF THE FAA'S BUDGET. DURING THIS TIME PERIOD, THE TRUST FUND HAS FUNDED ONLY ABOUT 24 PERCENT OF THE COST TO OPERATE AND MAINTAIN THE AVIATION SYSTEM. WE THINK THAT THE OPERATION OF THE MODERNIZED AVIATION SYSTEM IS JUST AS IMPORTANT AS THE PURCHASE AND INSTALLATION OF NEW EQUIPMENT. AFTER ALL, THE USERS OF THE SYSTEM WOULD RECEIVE NO BENEFIT FROM THE INSTALLATION OF NEW TECHNOLOGY IF THAT TECHNOLOGY IS NOT CERTIFIED, MAINTAINED, AND OPERATED FOR THEIR USE. TAXPAYERS SHOULD PAY FOR THE 15 PERCENT USAGE ATTRIBUTABLE TO MILITARY AND OTHER PUBLIC USERS. OUR PROPOSAL IS BASED ON THE PREMISE THAT THOSE WHO DIRECTLY BENEFIT FROM AVIATION SERVICES HAVE A RESPONSIBILITY FOR PAYING FOR THE COST OF THOSE SERVICES. THIS DOES NOT MEAN, AS SOME ALLEGE, THAT WE DO NOT BELIEVE THAT AVIATION BENEFITS SOCIETY AS A WHOLE. CLEARLY, IT DOES--AVIATION PRODUCES IMMENSE BENEFITS. BUT PUBLIC BENEFIT DOES NOT EQUATE TO PUBLIC SUBSIDY. OUR PROPOSAL, THEREFORE, PLACES RESPONSIBILITY FOR FUNDING FAA ACTIVITIES ON THOSE WHO DIRECTLY USE THEM AND BENEFIT FROM THEM.

IN CLOSING, MR. CHAIRMAN, I WANT TO RECOGNIZE THE CONTRIBUTION WHICH YOU AND THE MEMBERS OF THE SUBCOMMITTEE HAVE MADE TO THE SAFETY AND EFFICIENCY OF OUR AIR TRANSPORTATION SYSTEM. I LOOK FORWARD TO WORKING CLOSELY WITH THE MEMBERS OF THE SUBCOMMITTEE AND URGE THE SUBCOMMITTEE TO ACT FAVORABLY ON THE FAA'S APPROPRIATION REQUEST FOR FISCAL YEAR 1991. THE AMOUNTS WE ARE REQUESTING ARE ABSOLUTELY NECESSARY FOR THE FAA TO FULFILL ITS SIGNIFICANT SAFETY RESPONSIBILITIES ON BEHALF OF THE AMERICAN TRAVELING PUBLIC.

THIS CONCLUDES MY PREPARED STATEMENT. I WILL BE PLEASED TO RESPOND TO ANY QUESTIONS YOU MAY HAVE. THANK YOU.

BIOGRAPHY

Mr. **Lehman**. Thank you, Admiral Busey. Since this is your first appearance before the Subcommittee, we shall insert your biography in the record at this point.

[The information follows:]

Retired Navy Admiral James B. Busey was confirmed in June 1989 as the Administrator of the Federal Aviation Administration. At the FAA, Admiral Busey directs a predominantly technical work force of 47,000 people who are responsible for a broad range of safety functions including certification of aircraft, airmen and airports and the operation and maintenance of the air traffic control system. The agency also oversees aviation security at U.S. Airports, administers a $1 billion-plus annual airport grant program and is implementing a multi-billion dollar program to modernize the National Airspace System.

A career Naval aviator, Admiral Busey enlisted in the Navy in 1952 and was assigned to the Naval Aviation Cadet Program. He received his commission and Navy wings of Gold in August 1954. Admiral Busey's 37-year career as a naval officer included tours in Vietnam in 1967–1968, where he received the Navy Cross for combat action. Other key assignments included a tour in Washington, D.C., following his promotion to Rear Admiral in 1979, where he served successively as the Auditor General of the Navy and the Deputy Chief of the Naval Material, Resource Management.

Following an operational flying assignment in California, he was promoted to Vice Admiral and returned to Washington in July 1983 as Commander of the Naval Air Systems Command. In 1985, he was appointed Vice Chief of Naval Operations and promoted to full Admiral.

Admiral Busey is a native of Urbana, Illinois. He attended University of Illinois in Urbana and the Naval Postgraduate School where he received a bachelor's degree and a master's degree in management.

Mr. **Lehman**. It is now 12:00. I think that it would be wise to recess until 2:00. We will come back then and start the questions.

[Recess.]

FAA GOALS

Mr. **Lehman**. We will reconvene the Subcommittee.

Admiral, before getting to the details of your budget, we would like to talk to you a little about some of your goals for the FAA and what you see as the future of aviation in this country. Looking ahead, there are a number of factors one should consider. These include such things as technological developments, the availability and price of fuel, airport and airspace congestion, and, of course, safety. What future do you see for aviation in this country and what obstacles do you see with respect to the growth of aviation?

Admiral **Busey**. Yes, sir. The future of aviation is bright, in my judgment. We've seen fantastic growth since the invention of the airplane and the first flight at Kitty Hawk. We've seen tremendous growth in the use of aviation since deregulation back in 1978.

This year, we will be experiencing about half a billion passengers flying in our system and, by the end of this decade, we forecast that there will be almost twice that, a little better than 800 million passengers flying in our system.

So the future is bright. New technology continues to offer us ways to make air travel swifter, more comfortable, safer and more economical. So I think the future is bright, and I'm very enthused, as I know all my colleagues at the FAA are.

FAA OBSTACLES

Mr. LEHMAN. What about the obstacles?

Admiral BUSEY. Well, the obstacles are of course there. Safety, if one wants to view that as an obstacle, I prefer to call it a challenge. We need to continuously keep our guard up and work to improve the system safety. I think we've been doing that through investment, through hard work. The trends are all in the right direction, from commuters to air taxi to general aviation to the big carriers. The accident records are continuing to improve.

The obstacles such as higher fuel costs are going to be with us. That will be part of the market place and the chief obstacle that we're going to be facing in the next few years from the FAA's standpoint, in my judgment, will be the system capacity issue. We simply have to continue working hard to solve both the air command and control problems that we're facing with potential congestion and similarly the land side. We've got to continue to work to either bring new concrete into the system or to make better and more efficient use of the concrete that we already have.

INTERMODAL TRANSPORTATION

Mr. LEHMAN. Do you see any challenge to aviation or any relief for aviation from high speed rail, such as they now have in France? Don't you see something like that happening in this country? It's already happening in Europe.

Admiral BUSEY. Yes, sir. I agree with your thesis, and I think the National Transportation Policy that was recently published by Secretary of Transportation Skinner addresses the intermodal aspects of what we need to be looking at in the future from our American transportation system. I think there's a definite role on short haul routes for us to seriously consider high speed rail, mag lev, better connections through our air hubs with these other ground modes of transportation, and I think we've created a spirit in the new Department of Transportation that will facilitate that.

We're looking harder, working with our colleagues in the other modes at seeing how we can connect their modal interests up with some of our airport developments.

TRANSIT AND HIGHWAYS

Mr. LEHMAN. What about FAA trust fund money for building better highways and rapid transit to the airports?

Admiral BUSEY. As the FAA Administrator, I am against that, sir. I want to see the airways trust fund money spent on aviation-related issues.

TILT ROTOR TECHNOLOGY

Mr. LEHMAN. Now we'll get back to serious business.

Admiral BUSEY. Yes, sir. Another thing I might mention, though, talking about high speed rail and other modes of transportation, I think tilt rotor technology offers us also a very interesting——

Mr. LEHMAN. What is?

Admiral BUSEY. The tilt rotor technology is something that we need to take a good, hard look at for commercial applications to help us on the short haul, center city to center city type of operations.

DEVELOPMENT OF CIVIL AVIATION

Mr. **Lehman**. Under the Federal Aviation Act, you are charged with promoting and fostering the development of civil aviation. Therefore, to the extent there are obstacles impeding the growth of aviation, how effective do you believe the FAA's programs have been in dealing with these problems? After all, aviation is just a component of the whole national transportation strategy, and maybe not even the most important, when you compare it to highways or railroad freight. But you are a necessary component.

Admiral **Busey**. Yes, sir. And when we consider that we're hauling half a billion people in our system domestically and internationally on an annual basis, we're a major contributor to our overall network of transportation. So I think we're a most important contributor there, and I think aviation has been continuing to make major contributions to solving the transportation problems concerning people and also moving things.

Our cargo and parcel delivery, the overnight express applications are continuing to grow and are becoming a part of our culture.

Mr. **Lehman**. Yes, but 15, 20 years ago, nobody predicted air express and these others.

Admiral **Busey**. That's true.

RAPID OCEANIC TRANSPORT

Mr. **Lehman**. Any surprises 20 years from now?

Admiral **Busey**. I predict that the surprises that we'll see 20 years from now will be more rapid oceanic transport becoming available.

Mr. **Lehman**. Two hours to Tokyo?

Admiral **Busey**. Yes, sir. I think the supersonic oceanic transport will be a real thing in the future.

Mr. **Lehman**. And what role will FAA have in all of this?

Admiral **Busey**. Well, our role, of course, will be to participate in the certification of those aircraft to make sure that they're built safely and maintained well, operated efficiently, that we've got the communications and navigation systems to ensure their safe and proper handling while they're en route, and we'll need to continue to develop our terminal facilities that will serve as hubs for this kind of transport so that we can provide efficient connectivity for our passengers and for the cargo to the terminals from which these kinds of airplanes will operate.

ORGANIZATION GOALS

Mr. **Lehman**. Most organizations have certain goals, whether private or public. I remember Secretary Lehman had the idea of a 600 fleet navy—remember you were there.

Admiral **Busey**. Yes, sir, I was there.

Mr. **Lehman**. Within the broad authority and responsibilities enunciated in the FAA act, have you established such goal or goals for FAA during your term as administrator?

Admiral **Busey**. Yes, sir.

Mr. LEHMAN. What procedures have you established to measure your progress toward achieving the 600 ship FAA?

Admiral BUSEY. Well, I came in and established some personal goals for myself: safety, security, procurement. In other words, making the FAA procurement system as efficient as we possibly could. People was another one of my goals, recognizing that the 50,000 plus people that we have in the FAA are dedicated, very professional, very skilled civil servants. We need to be able to recruit the best talent we can, provide then with adequate training, and then ensure that we retain that work force by keeping them happy and help them to feel productive.

Outreach was another goal that I set for myself, meaning to have an open door, to communicate openly and regularly with the user communities represented by all the alphabet groups as well as the pilots in the general aviation fleet, the pilots and the operators in the commercial fleets.

Those were my personal goals. We have also succeeded in providing through the Secretary of Transportation some FAA goals into the President's Management by Objective program. There are measurable goals there that monitor our progress towards achieving the modernization that we're striving for in the National Airspace Modernization Plan, as well as improving the international security and the other domestic security aspects that we're striving to achieve, such as improved screening procedures in domestic airports. So those goals have been incorporated into the President's Management by Objective goals.

With the advent of the National Transportation Policy, we're today in the process of finalizing an FAA strategic plan, an overall strategic plan that involves participation by all the executives in the FAA that will be a blueprint that we can follow and hook all of our personnel, procurement and other modernization programs onto. So we are stretching those goals into the development of more measurable and easily achievable goals within the FAA.

Mr. LEHMAN. Do you think at this time next year, when GAO comes back they're going to be more satisfied or less satisfied?

Admiral BUSEY. When GAO comes back, I suspect they'll be just as dissatisfied.

Mr. LEHMAN. No worse?

Admiral BUSEY. After all, it would be my intention that it would be no worse, and hopefully better.

Mr. LEHMAN. That would be your goal, no worse?

Admiral BUSEY. We'd really like to have GAO become more satisfied with our progress.

PERFORMANCE MEASURES

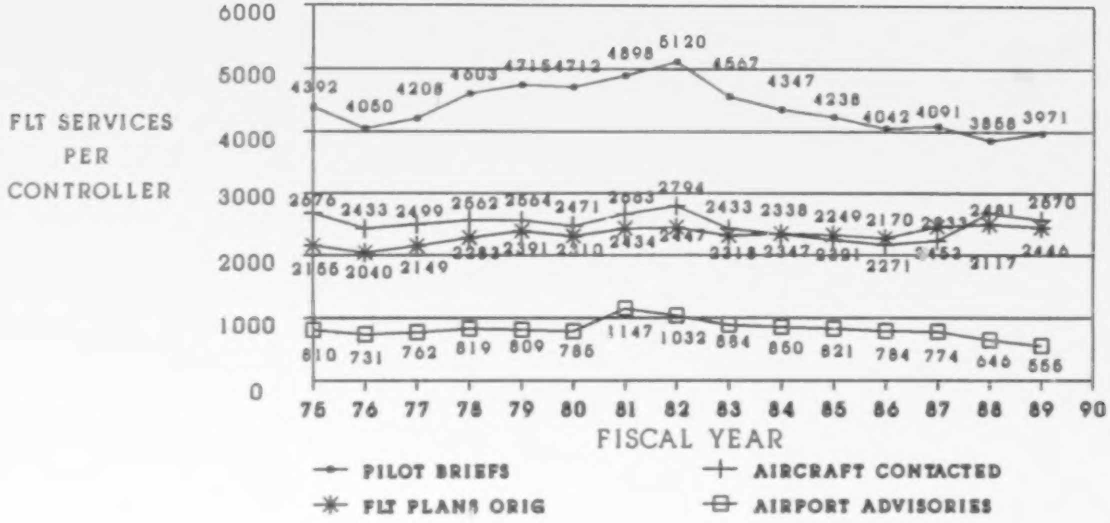
Mr. LEHMAN. All right.

Please update for the record the performance measures contained on pages 269 through 273, including any measures you may have developed since last year on cost per operation.

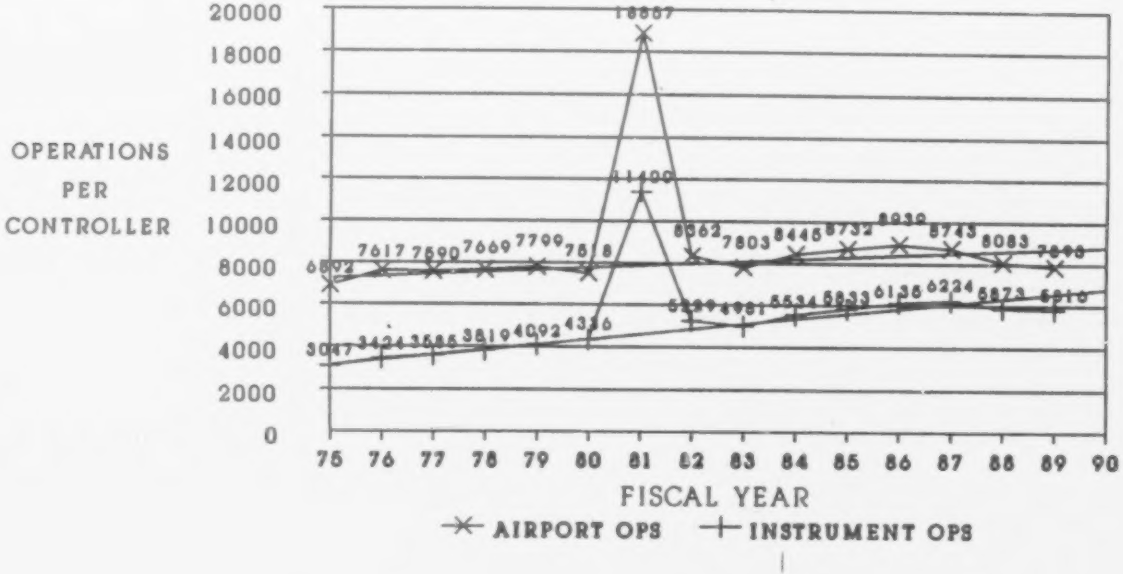
[The information follows:]

PRODUCTIVITY PER CONTROLLER

(STATIONS)

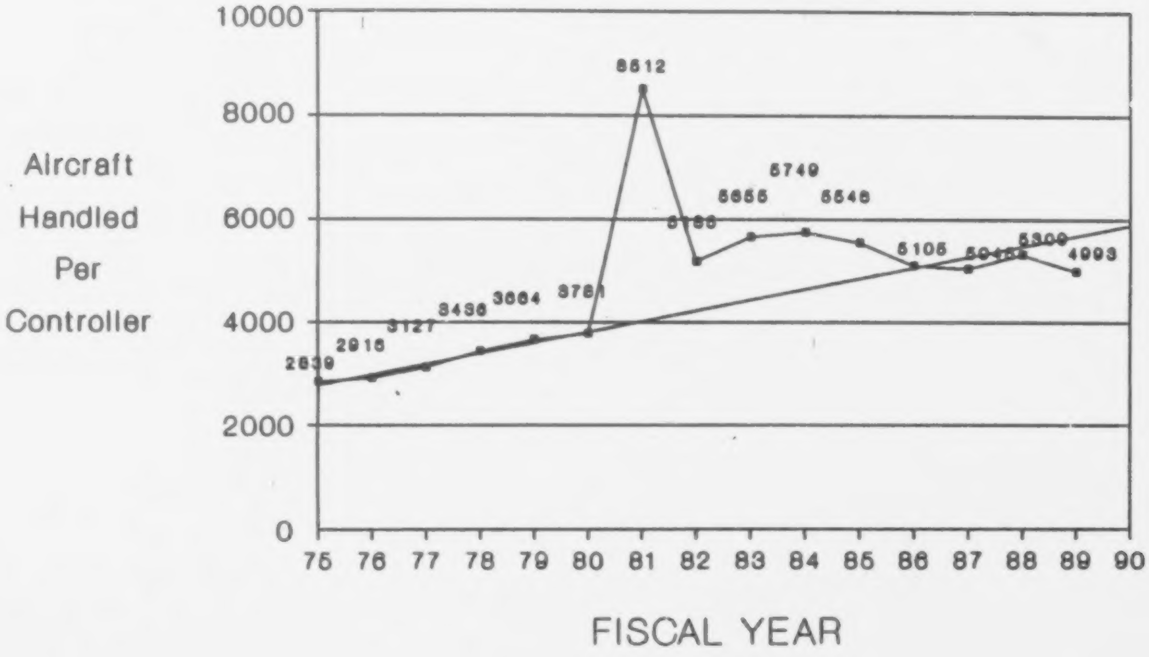


PRODUCTIVITY PER CONTROLLER
(TERMINALS)



Trend line based on FY75 thru FY80 data

PRODUCTIVITY PER CONTROLLER
(CENTERS)



Trend line based on FY75 thru FY80 data

[The information follows:]

The cost data shown on the chart on page 272 is updated using FAA's budget for FY 1989. FAA's cost per passenger carried in 1989 was $12.02 in 1989 dollars or $11.28 in 1987 dollars. The cost per passenger increase is due to: (1) a significant increase in the funding for FAA's capital programs; and (2) significant increases in airline fares in 1988 and 1989 resulted in domestic passenger enplanements remaining relatively constant.

AIR TRAFFIC CENTERS AND TOWERS
OPERATIONAL ERRORS

EN ROUTE	ACTUAL	PER MILLION AIRCRAFT HANDLED	PERFORMANCE*
FY 1985	1104	33.75	+22.73%
FY 1986	815	23.85	+29.33%
FY 1987	835	23.33	+2.18%
FY 1988	676	18.73	+19.72%
FY 1989	588	19.55	-4.38%
FY 1990 (PROJECTED)	559	18.57	+5.01%

TERMINALS	ACTUAL	PER MILLION AIRPORT OPER.	PERFORMANCE*
FY 1985	403	6.96	-6.58%
FY 1986	397	6.73	+3.30%
FY 1987	439	7.20	-6.98%
FY 1988	379	6.30	+12.50%
FY 1989	367	6.02	+4.44%
FY 1990 (PROJECTED)	349	5.72	+4.98%

*Performance is the difference between the prior year and the current year, expressed as a percentage of the prior year. Positive percentages indicate improved performance.

BUDGET GROWTH

Mr. **Lehman**. Over the past ten years, FAA's budget has been, by far, the fastest growing in the Department and one of the fastest growing in the entire Federal Government, equaling or surpassing the growth of the DOD. For fiscal year 1991, you're again proposing approximately a 16 percent increase. Why do you believe the FAA warrants such special treatment, particularly when reductions are proposed in other transportation programs such as highways? With others being reduced or frozen do you think you're entitled to special treatment?

Admiral **Busey**. Yes, sir. I very definitely do. And let me say up front that my primary justification for that is I think unlike some of the other agencies that you've mentioned, we in the FAA are what I consider to be an operational agency. We not only are a regulatory agency in the true sense of the word as are many other agencies, but our primary responsibility is to operate and control and manage, if you will, the airspace over our country, that national resource that's our airspace. We manage that on a day-to-day basis.

The vast majority of our personnel are involved in that management, so with the tremendous growth that we're experiencing in the aviation system, just since deregulation, and with our forecast for continued growth, we need the dollars that we're asking for to give us an opportunity to stay ahead of that rapid growth.

Mr. **Lehman**. I will yield at this time to Mr. Coughlin, but we both have to vote. We'll be back right away.

Mr. **Coughlin**. Thank you, Mr. Chairman. I want to join in welcoming Admiral Busey in his first appearance before this committee. The Admiral is a career aviator, I note, with tours in Viet Nam. He wears the Navy Cross which is our nation's second highest award for valor and speaks very loud and clear to this member of the committee. He formerly commanded the Naval Air Systems Command and was the Vice Chief of Naval Operations and the former Commander in Chief of the U.S. Naval Forces in Europe and all that may seem like nothing compared to the job he's got now.

But they are indeed posts that were critical to the service of this country and you have our admiration and respect and good wishes as you undertake your stewardship of the FAA.

Admiral **Busey**. Thank you, sir.

INDEPENDENT FAA

Mr. **Coughlin**. Over the years, the FAA has sometimes suffered a hostile relationship with the Department of Transportation and especially the Office of the Secretary. Many say this situation is now behind us but it may be behind Congressional efforts to establish an independent FAA. So I ask how the relationships are with the OST today and do we need an independent FAA?

Admiral **Busey**. Let me say, Mr. Coughlin, up front that when I came aboard, I decided to take this job which many of my friends at the time and still think I'm crazy for doing, but I'm still glad I did it because of the challenge. The opportunity to work with these folks is just unbelievable. But I decided to come aboard because of a gentleman named Sam Skinner, Secretary Sam Skinner.

I was caught—and I didn't know the gentleman before last year at all, but I was caught by his drive and by the goals that I saw that he wanted to follow through on for the Department of Transportation. So the prospect of working with him was very exciting. So I came aboard not seeking autonomy or independence, but in the role of being one of the modal administrators that would be a member of a new advancing, exciting team.

And in the nine months plus that I've been aboard, I see no reason to change that view. I think the relationship between the Department of Transportation and the FAA is significantly different than it has been in the past. I would characterize our relationship as very close.

The Secretary is very supportive of my efforts. He has delegated back to me all of the responsibilities that had been pulled from the FAA up to the Department over the last several years, including sole source selection responsibilities for major procurements, management of my senior executive service, organizational changes in the agency—I could go on and on. All of this has been delegated.

I deal by phone or personally with the Secretary on a daily basis. I couldn't ask for better support. And in my judgment, I think that in these challenging times I am much more comfortable being a part of the Department of Transportation with a Cabinet officer helping me deal with the issues that I have to deal with at the Cabinet level and helping me with the issues we have to deal with in the Congress. I'm much more comfortable there than I would be if the FAA were today an independent agency.

So I'm not in favor of the FAA being an independent agency. I think the minuses far outweigh the pluses.

Mr. COUGHLIN. It has been said that the creation of an independent FAA would not necessarily solve some of the problems the FAA has with procurement regulations, with personnel regulations, with other things that impede the operation of the FAA. They can be solved without having an independent FAA. Would you agree with that?

Admiral BUSEY. Yes, sir, I would.

PROCUREMENT OPERATIONS

Mr. COUGHLIN. When we met prior to your being confirmed as head of the FAA, I indicated at the time that I feel like the FAA was very much a two part operation right now: one was an operating agency that operates the air traffic control system and the other was a gigantic procurement operation which is going on full tilt right now. I expressed my opinion at the time that somehow you need a procurement czar of some sort in the agency, and I'm very pleased to see that you have one and that you've established an almost independent procurement operation. How is that working out?

Admiral BUSEY. Well, it's still too early for me to be able to give you any specific examples, Mr. Coughlin, of how it's working. But as you mentioned, I created an Executive Director for Acquisition and I've selected Mr. John Burt. John is here with us today in the back of this hearing room as part of his learning process to get onboard in the job. He has extensive experience in Federal acquisition and has been a program manager.

So I think the structure that I have set up with Mr. Burt reporting directly to me, having broad policy oversight over the acquisition process of the Federal Aviation Administration, I think that's a key part of what we've done.

Another thing that we've done is to strengthen the role of the program manager. I found an organization when I came onboard that had operated eight to nine years ago with a structure and an annual procurement budget of something around $400 million a year and, as you know, for next fiscal year, we're asking for $2.5 billion. The structure of the procurement process was basically the same.

So what we are undertaking is a significant strengthening of the program manager, the guy or lady that's directly responsible for the management of that program, providing them with contract, legal, logistics support in the form of people reporting directly to them and holding that program manager accountable and responsible for delivering a product.

We're working towards that, providing better education. We've realigned the organization so that our focus, the focus of the organization and the discipline of the organization is all directed toward supporting the program manager to make their program successful.

I fully expect to be able to come back to you next year and to give you some concrete examples of measures of our success. But today, it's a bit too early because we're still in the process of moving into this structure.

DRUGS AND AVIATION

Mr. **Coughlin**. I know we will review in some detail later some of the questions that the General Accounting Office raised this morning. Let me turn briefly then to another subject of special interest to me. As you may know, I also sit as the Vice Chairman of the Select Narcotics Committee, and obviously drugs and aviation don't mix very well. A recent incident obviously that has received some very substantial national publicity and I understand the participants in that or the flight crew in that has this morning pleaded not guilty. That's now before the courts.

I guess my question is that the Urban Mass Transportation Administration regulations have been thrown out albeit on procedural grounds; are your regulations for testing being challenged as far as you know?

Admiral **Busey**. Not to my knowledge, sir. There have been some recent court cases, if my memory serves me correct, in the Urban Mass Transportation Administration and perhaps in the Federal Highway Administration but, Greg, can you help me here? My chief counsel, Greg Walden.

Mr. **Walden**. The industry drug testing rule of the FAA has been challenged and it's pending before the Court of Appeals. All the modal administrations' drug testing rules have been challenged in court and we are awaiting decisions on that front.

Mr. COUGHLIN. Your regulations require tests for five drugs as soon as possible after an incident but not later than 32 hours—32 hours seems like an awful long time. The Federal Railroad Administration's regulations, for example, require drug tests within 8 hours. Is there any reason you would have a 32-hour wait before you would have to be drug tested instead of an 8-hour wait?

Admiral BUSEY. I agree with you, Mr. Coughlin, I think that's too long and we're going to continue to work to try to get that shortened. Particularly in the near future, if we are able to consider incorporating alcohol testing into that, 32 hours will be clearly too long a time to be able to wait for alcohol testing.

ALCOHOL TESTING

Mr. COUGHLIN. That was my next question. Your regulations do not require any alcohol testing. The Federal Railroad Administration requires both alcohol and drug tests. Are you re-looking at that?

Admiral BUSEY. Yes, sir. The Department of Transportation has comments back now from a rulemaking of last year, as I recall. They're going through the comments and will be in the process of considering future rulemaking regarding alcohol testing and then of course we will modify or take those rules as applicable to the aviation world and incorporate them into our program when they come out.

Mr. COUGHLIN. I know that there's always some objection to random testing, but I suspect a random testing program pre-flight or pre-driving a locomotive is something that could be very effective. Do you have anything like that under consideration?

Admiral BUSEY. We have discussed that, and I think it's fair to say that yes, that is under consideration. As you know, we in the Federal Government have been participating in the random and the routine drug testing of our employees for some time. As a matter of fact, I've been tested three times randomly in the nine months that I've been aboard. So I can assure you that our testing procedure doesn't overlook anyone.

We will be considering incorporation of alcohol testing into our FAA safety-related programs in the near term and, as you suggest, some sort of a random pre-flight test is certainly something that we'll consider.

Mr. COUGHLIN. A random testing program generally for alcohol doesn't do a lot of good because the residual effect of alcohol in the blood is not nearly as long as it is for other drugs. But a random testing pre-flight program seems to me could have a very salutary effect on the kind of situation that existed recently on the flight from Minneapolis.

Admiral BUSEY. Yes, sir.

FLIGHT CORRIDORS FOR DRUG INTERDICTION

Mr. COUGHLIN. The Anti-Drug Abuse Act of 1988 required a study of the feasibility of establishing flight corridors across the borders of the continental United States and interception of aircraft that deviate from such corridors. What did that study show?

Admiral BUSEY. I'm going to need some help on that. Bill, can you help me from an air traffic standpoint?

Mr. POLLARD. I don't think I can give you a complete answer, sir. We did have some proposed rulemaking as far as requiring transponders in the air defense area and establishing some corridors, but I don't think we followed through by establishing corridors.

Admiral BUSEY. Mr. Belger?

Mr. BELGER. Just to amplify on the question, I think the study showed that we could get more benefit from doing things like Mr. Pollard said with the transponders and tracking aircraft over the zones and into the United States rather than establish strict corridors.

Mr. COUGHLIN. I believe the report just came out. You might want to provide it for the record here. Not the whole report, but the relevant portions of it. Do you have any other thoughts of effective ways of detecting drug smugglers?

[The information follows:]

US Department
of Transportation

**Federal Aviation
Administration**

Report on the Use of Flight Corridors in Support of Drug Interdiction

Washington, D.C. 20591

March 1990

Report of
the Secretary of Transportation
to the United States Congress
pursuant to Section 7213 of the
Anti-Drug Abuse Act of 1988
(P.L. 100-690)

[CLERK'S NOTE: This report is on file in the Subcommittee's office.]

EXECUTIVE SUMMARY

This report is submitted to Congress in response to the requirements of Sections 7213(a) and (b) of the Anti-Drug Abuse Act of 1988. Pursuant to Section 7213(a) of the Act, the Secretary of Transportation has conducted, in consultation with the Attorney General, the Secretary of the Treasury, and the Department of Defense, a study of the feasibility of establishing flight corridors across the borders of the continental United States and intercepting aircraft that deviate from such corridors. The Secretary, in that consultation, has also studied the impact of corridor establishment on the safe and efficient movement of aircraft and on drug interdiction.

Methods necessary for most efficient detection and interdiction, and the resultant deterrence to air smuggling activities, require that identification and tracking of suspect aircraft commence well in advance of that aircraft reaching potential corridor ingress points. For that reason, drug law enforcement agencies have pursued actions that maximize the effective use of available resources and facilitate effective interdiction at distances beyond those which would be feasible through the use of corridors.

Pilots operating aircraft into the United States, across a border or through an Air Defense Identification Zone (ADIZ), are required to file a flight plan detailing that operation prior to such entry. These operations are conducted in accordance with either a visual flight rules (VFR) or instrument flight rules (IFR) flight plan. Pilots operating on an IFR flight plan operate their aircraft along routes and at altitudes prescribed by the Federal Aviation Administration (FAA) air traffic control system. Furthermore, pilots operating on VFR flight plans are required to comply with position reporting and communications requirements prior to entry into or crossing an ADIZ. VFR operations are often conducted along established airways or routes that can be correlated to the location of designated airports of entry within the United States.

There are 28 airports of entry designated by the U.S. Customs Service for routine use by pilots entering the U.S. from the south across the border at Mexico or through the ADIZ along the southern, eastern, or western coastlines. Pilots entering the U.S. are required, in addition to the flight plan requirements for FAA purposes, to notify the U.S. Customs Service of their intended entry at least one hour in advance of their arrival at an airport of entry. Although other airports are designated as airports of entry, their use requires special permission and prior coordination with the U.S. Customs Service.

The United States has no jurisdiction over airspace beyond the 12-mile limit or across land borders. Therefore, subject to international agreement, corridors would not extend beyond 12 miles from the U.S. coastline--a distance that may be insufficient for their intended purpose. Also, corridors at the U.S. borders could not be developed except by agreement with the countries involved. Without such agreement, they would become mere "gates" allowing only a brief view of an aircraft's operation. Regardless of the size and location, a corridor would not lessen the likelihood that drug smuggling aircraft would be operated in violation of FAA regulations, including the corridor requirement. Therefore, corridors would neither significantly enhance detection nor lessen the amount of airspace that interdiction forces are required to monitor.

Although a specific location and proposal would be necessary to assess definitively the impact, an adverse effect on air safety and/or efficient movement of aircraft operations is certainly likely in many areas, as in Southeastern Florida, for example. The use of corridors in support of drug interdiction efforts would require that such corridors be designed to accommodate, yet constrain, flight to designated airports of entry. Such corridors would need to be relatively few in number, thereby limiting the number of routes and airports of entry available to the pilot. During periods of inclement weather conditions, corridors could inhibit flight altogether or cause pilots to operate in conditions for which the pilot is not prepared or qualified, thereby endangering the pilot, passengers, and/or others in proximity to the aircraft's operation. Further, the location of each corridor would need to be compatible with traffic flows into adjacent airports, heavily trafficked terminal areas, and special use airspace.

The interdiction of aircraft which deviate from a corridor is predicated upon detecting such deviations. Establishment of as many as 20 corridors, for example, along the border with Mexico, would leave areas of substantial distance wherein aircraft could cross in violation of the corridor requirement. Consequently, the airspace to be monitored by interdiction forces, outside of any corridor, would not differ from that which exists under present conditions.

The concept of establishing corridors to isolate and contain aircraft operating into the United States was among several options considered by drug law enforcement officials. Although some of the shortcomings of the corridor concept could be overcome, many were serious enough to raise concerns about the desirability of the concept. Many of the affected agencies agree that corridors may not be the best means to fight the drug war. Other and more cost-effective methods, such as requiring transponders on general aviation aircraft, can just as effectively enhance sorting and detection of smugglers. In the judgement of the Federal Aviation Administration, air corridors developed to facilitate drug interdiction could adversely impact upon air safety and aircraft flight efficiency.

Admiral BUSEY. We have many, many processes underway. I'll let Mr. Belger mention a few of them in detail. But for your information, over the last year, we in the FAA, working closely with Customs and the Drug Enforcement Agency, I believe, have been successful in leading them to more than 100 abusers in the general aviation world of people violating our drug laws by using general aviation airplanes. Monte, would you like to address a little more of what we're doing specifically?

Mr. BELGER. Yes, sir. In direct operations with Customs and DEA, we have participated in their seizure of over 100 aircraft, primarily based on the registry information that we keep in the airmen/aircraft registry in Oklahoma City, which is another effort that we have underway to try to improve our support to law enforcement.

We have a notice of proposed rulemaking that is out for comment now which proposes changes to the registry to allow us to be more responsive to law enforcement officers; to require airmen, for example, to periodically renew their licenses, to require aircraft to be periodically recertified, so that we have a better handle on who owns aircraft, who is properly registered and whether or not the aircraft is properly licensed to be operated. We have made a great deal of progress in our coordination activities with Customs and DEA doing those types of things in the last year.

Mr. COUGHLIN. Thank you, Mr. Chairman. Let me yield at this time. I have other questions, however.

Mr. LEHMAN. Mr. Wolf?

Mr. WOLF. Thank you, Mr. Chairman. I want to welcome the Admiral and the other members of the panel. Let me at the outset just say something for the record. I find sometimes that when questions are asked the promise is that there will be an answer, but there never is an answer.

The last time I had that problem and somebody said I'll give you a call and they never called. I used to work in the executive branch, and I know how you feel about coming before Congress. Sometimes there can be a resentfulness. Whatever the reason is, I would like when the questions are asked that detailed, exact answer come back.

I really would like to make sure that something is answered when asked, and if not, someone could come by my office and explain why there's a problem. Could we do that, Admiral?

Admiral BUSEY. Yes, sir.

REHIRED ANNUITANTS

Mr. WOLF. Great. Thank you. Thank you very, very much. A couple of questions.

Pay for rehired annuitants. A number of rehired annuitants came by to see me who live in my Congressional District. It's called the Offset Program. You're aware of that. The understanding was that the FAA supported this program. This committee, up until last year, put language in dealing with it.

Last year, the House Post Office and Civil Service Committee wrote a letter basically in opposition and ended by saying that they would be glad to work, since the exemption first expired, they would be glad to work with the FAA.

What is the position of the FAA with regard to this issue? With regard to the pay? Secondly, has any indication been presented or given to the House Post Office and Civil Service Committee?

Admiral BUSEY. Our position is that we would like to continue with the authority to rehire retired annuitants. We had some 140 as I recall in our employ. These are highly skilled, very professional air traffic controllers that play an essential role in our central flow of control management process here in the headquarters in Washington. That's where that process is located, participating and directing air traffic throughout the world.

Right now, those individuals, the majority of them are staying with us on a part time basis so that their annuity is not totally destroyed. That's the way they have to stay in our employ, with the hopes that we will be successful in regaining this approval to rehire annuitants.

Mr. WOLF. Let me just break in. The question isn't—let me go back into the question. Doesn't the FAA support the program?

Admiral BUSEY. Yes.

AUTHORIZING LEGISLATION NEEDED FOR REHIRED ANNUITANTS

Mr. WOLF. Okay. Was this support conveyed to the Post Office and Civil Service Committee?

Admiral BUSEY. To my knowledge, no.

Mr. WOLF. But that is the committee that has the jurisdiction.

Admiral BUSEY. Yes, sir. To my knowledge, we have not directly gone to the Post Office and Civil Service Commission——

Mr. WOLF. Do you think you should?

Admiral BUSEY. Let me see if I'm wrong.

Mr. STOER. We have, Mr. Wolf, re-sought the authority in the appropriations bill that's presented before you for fiscal 1991. We have not made a separate approach to Post Office and Civil Service but we'll certainly take that back and pursue that avenue as well.

Mr. WOLF. Are you aware of their letter of October 3, 1989 in opposition because no one approached them?

Admiral BUSEY. We were all caught by surprise with the revocation of this authority, Mr. Wolf. I recall specifically last fall when the approval was removed and was effective as of the end of December. It took us several weeks questioning to try to discern why did this happen because it wasn't an issue that had been discussed before this committee, it wasn't a conference issue.

Mr. WOLF. Well, it was an issue that was discussed. Congressman Coughlin asked the question and you said that you—not you, but another member of the FAA said that they supported the program but that it ended. I think the key is to see what kind of follow-up—how many individuals are affected by the program?

Admiral BUSEY. To my knowledge, it's 140—135 to 140.

Mr. WOLF. And the budget request for fiscal year 1991 includes this program?

Admiral BUSEY. Yes.

Mr. WOLF. But for 1990, did it include the program?

Mr. **Stoer**. Our original request for fiscal 1990 did include the program, and it was struck, I believe, associated with a point of order notion regarding committee jurisdiction last fall.

Mr. **Wolf**. Well, that should have been a tip off, I think, that maybe there was a fundamental problem. And since that date, no one has contacted the other committee?

Admiral **Busey**. Not to my knowledge.

Mr. **Stoer**. Not in direct correspondence as an administration proposal, no, sir.

NUMBER OF REHIRED ANNUITANTS

Mr. **Wolf**. How many FAA reemployed annuitants have actually left because of the lapse of the program?

Mr. **Pollard**. In air traffic, we have 119 of those 135 and we've had about 8 that have left. They keep anticipating that this will be rectified, so they're staying with us.

Mr. **Wolf**. So you are sort of expressing that you're going to take care of it? If you were to tell them today at 3:00 when you get back to the building that it's over, how many do you think would leave?

Mr. **Pollard**. Well, it's difficult to say. Before when we had the annuity offset we were getting basically 40 hours per week out of these employees. Now with the offset provision no longer in being, they basically have become part time employees. I think they would probably stay with us, but they would not stay with us working full time because their annuity would be impacted.

Mr. **Wolf**. Is there any estimate of the cost to the FAA of losing any employees or the potential loss, including retirement benefits and training costs for new employees or anybody else?

Mr. **Pollard**. From a dollar standpoint, we don't have that information. I can tell you just from a professional assessment that these are people, as the Administrator had said, that are experienced, have many years in the system, and it would take many years basically to replace. In other words, if they leave, they would be replaced ultimately in a domino effect by developmental controllers. In our case, they would go through the aeronautical center and it would take years to gain that experience.

Mr. **Wolf**. And so they really are playing a valuable role and you'd like to keep them. And if you could, if you could follow up with the committee and let me know what you plan on doing, I would appreciate it very, very much.

Admiral **Busey**. Yes, sir. We'll do that.

[The information follows:]

We are, indeed, interested in having the authority to reemploy air traffic controller annuitants, and have requested that authority in our appropriations request. In terms of substantive authorizing language for the longer-term, we are awaiting the issuance of pay reform legislation by the Office of Personnel Management, which we hope will address the issue of reemployed annuitants generally.

THERMAL NEUTRON ANALYSIS

Mr. **Wolf**. The second issue and it's one that I raised at the hearings last year was the question of airline safety. You didn't mention airline safety very much in your testimony, but that doesn't mean how much you're working on it. Where are you with regard to the thermal neutron analysis, the TNA devices? How many have been ordered, how many have been installed?

Admiral BUSEY. Six have been ordered.

Mr. WOLF. Six have been ordered.

Admiral BUSEY. Two have been installed to date: one at Kennedy and one at Miami, with TWA at Kennedy and with Pan Am in Miami. We have just concluded negotiations with the United Kingdom to install a third device at Gatwick. Their plans are to install that next month so it will be available for U.S. carriers primarily, and if time permits then for any other international carriers that are departing Gatwick for the United States. We expect to have that in operation to meet the summer traffic rush.

The other three devices—we intend to place one at Washington, Dulles. We're still in negotiations with the airport managers there and we have every reason to believe we'll be successful in placing that in the concourse at Dulles in the next several months. The fifth device, we're working with the Germans to place that TNA machine at Frankfurt to deal operationally with U.S. carriers' baggage. And the sixth, we still are in the process of deciding where we would like to place that. We've had a recent request from a foreign nation for us to loan that device to them for a period of time this summer to help solve some of their internal security procedures, and we'll be giving that consideration.

Mr. LEHMAN. Mr. Wolf, would you yield?

Mr. WOLF. Yes, Mr. Chairman.

Mr. LEHMAN. Is the one at JFK operational?

Admiral BUSEY. Yes, sir. The one at Kennedy was operational last fall and we've screened some 60,000 bags to date.

Mr. LEHMAN. And what about Miami?

Admiral BUSEY. The one at Miami is to go operational tomorrow.

Mr. LEHMAN. Thank you very much. I yield back.

THERMAL NEUTRON ANALYSIS PERFORMANCE

Mr. WOLF. Thank you, Mr. Chairman. What has been the FAA's experience with the TNA units as to accuracy and reliability?

Admiral BUSEY. The TNA device—let me give you a little background, if I may, before I tell you what our experience is—was developed through FAA R&D investments over a period of time. It was designed with a performance specification to screen bags in a certain period of time so as to have high efficiency from an operational standpoint. It was also designed to detect a set quantity of material, with a false alarm rate of a certain percentage. And if I may, I'd rather not get into those detailed settings.

Mr. WOLF. Sure. I understand.

Admiral BUSEY. Because we're trying to preserve the confidentiality for deterrent effect. But several years ago, it was designed to detect, let's call it X quantity of material. That's what it was designed for, that's what the machine has been calibrated for in operation. We have experimented through our R&D process and we've tested the devices for significantly smaller quantities of explosive materials than the specified X value, and of course that gives us a higher false alarm rate. We have experienced that in operations, we feel we can deal with the calibration of the machine at a lower specified or a lower setting for detection of the material.

I think overall with our experience to date, though, based on the operational experience at Kennedy, we are satisfied that the technology and the machine that we have in place is performing in accordance with the specification that it was built to. In other words, we're pleased with what we've seen in performance to date. It does give us the only known capability to detect all sorts of explosive materials.

Sure, we'd like to see it work faster. We'd like to see it detect smaller quantities with a lower false alarm rate, and I think as we continue to push the technology, that will come. But we're satisfied with what we've seen thus far.

Mr. WOLF. Has it been well received by the passengers?

Admiral BUSEY. To the best of my knowledge, it has not caused any undue delay from a passenger standpoint. Monte, do you have any specific inputs you could give Mr. Wolf concerning passenger acceptance?

Mr. BELGER. There has been no passenger inconvenience associated with the operation of the machine at Kennedy. I can give you one example of a captain of an aircraft against which a bomb threat was made and the captain—this was a domestic flight, now, and such flights are not required to send bags through the machine—the captain, before he would operate the flight, insisted that the bags be screened through the TNA machine and there was applause on the aircraft.

DULLES INTERNATIONAL AIRPORT TNA

Mr. WOLF. Well, if I were on the aircraft, I would applaud, too. I'd like to go out to Dulles when you begin that.

Admiral BUSEY. Sir, you will be notified when we cut the ribbon on the device, and I'd be delighted if you could accompany me out there.

[The information follows:]

The FAA would be pleased to have Congressman Wolf look at the new TNA as soon as it is installed at Dulles International Airport. The agency will be in touch with the Congressman's office as soon as installation is completed, sometime within the next several months.

EXPLOSIVE DETECTION SYSTEMS

Mr. WOLF. Good. I'll be there. Last fall, the FAA issued a rule requiring airlines to install explosive detection systems at 40 airports. To your knowledge, have the airlines followed through?

Admiral BUSEY. That rulemaking procedure merely sets forth the intent in a two-phased way. We have identified 40 high threat airports internationally. The first phase was to place 50 devices at those 40 airports within the first year. At the end of the second year, the total was, I believe, 159 devices were to be in place.

To actually cause the airlines to move towards compliance with that rule, the ball is in our court in the FAA to modify the standard security rules that each airline performs their security under. We have not issued that change to the rules yet. It is imminent. In the next month, we will be modifying the rules.

What we've been doing in the ensuing time is working with the airlines to point out to them our analysis of how many devices will ultimately be needed at these airports, etc. And, Monte, do you want to add any more onto that?

Mr. BELGER. No, sir. I think that covers it well.

AMERICAN CARRIERS

Mr. WOLF. Well, I won't ask the rest of the questions. Let me just summarize this point by saying—and there may even be a representative of the airlines in the audience. I, when given a choice in taking a private trip, will fly an American carrier. I feel an obligation to fly an American carrier, as U.S. Congressman. I really believe, though, that the airlines have an obligation to move swiftly and quickly on this.

Last week, I went to Spain with my wife and one of our children and visited my daughter who is studying abroad. And just knowing or not knowing that a device like that is operating can make a tremendous difference. I think for an airline or a company to say we don't want to purchase this for different reasons, or we don't want this to happen or that to happen, simply, I think, is unacceptable. And I believe it almost reaches to the point that we in the United States have an obligation to be much more aggressive and move ahead. It could almost be perhaps a marketing tool. I would just urge that you urge the airlines to act quickly. I know the Secretary feels very strongly about this.

The other questions I was going to ask you was what is your experience, is the data good, is the machine any good—everything you've said seems to indicate that it is. And clearly if it is the best technology and the device costs what—$2 million?

Admiral BUSEY. $1 million apiece.

PAN AM FLIGHT 103

Mr. WOLF. $1 million apiece. What do you think the claims will be against Pan Am for Flight 103? Do you think it will be over $1 million?

Admiral BUSEY. Yes.

Mr. WOLF. Do you think they could reach a half a billion dollars, perhaps?

Admiral BUSEY. Possibly.

Mr. WOLF. Possibly half a billion dollars.

You can see the improvements when you're flying abroad. I'll fly an American carrier any, any time. That American carrier, though, and those American carriers have an obligation and a duty—a duty to their employees, a duty to the travelling public and everyone, to get these devices in very, very quickly. Do you agree with this?

Admiral BUSEY. Yes, sir, I agree. And I intend to push forward with the rulemaking.

Mr. WOLF. I hope you do, and I think if you don't, maybe Congress should put some legislation in which requires it. Coming back yesterday on the trip, there was a whole class trip, a class—it looked like a junior high school group that was coming back. The thought of something happening to those kids and knowing that something could have been done which would discourage it, I think, is totally unacceptable.

So I just commend you and I hope you will move ahead. If there's anything that we can do in Congress to encourage the airlines, if you'll let us know. I would encourage people to fly American carriers because they do a good job, it's first class service, and it's jobs for American people. But in the process, I think there's an obligation that goes with that.

The next two last questions, and one, if someone could just call me about it, it's about the Lynchburg Municipal Airport. One of my colleagues urged me to ask a question, and without taking up the committee's time, if somebody could call, I would appreciate it.

Admiral BUSEY. Yes, sir. You'll be called.

DRUG SEIZURES

Mr. WOLF. And the last thing is could you submit a list to me—I don't necessarily think it's that important if you don't want to put it in the record—of the number of drug seizures that have taken place on all carriers, foreign and domestic carriers. Avianca had a very bad record for a number of years; has that record improved?

I'd like to see the number of seizures whereby drugs were found on the airlines, both domestic and foreign carriers coming from many different countries.

Admiral BUSEY. We have that material.

[The information follows:]

FAA is attempting to compile that information from the U.S. agencies who are responsible for drug seizures (e.g.—DEA, Customs), as our agency is not. The compilation is estimated to take three to four weeks.

Mr. BELGER. We would not be the source of that, it would either be Customs or DEA or one of the law enforcement agencies, but we can gather that for you and get it to you.

Mr. WOLF. Do you know how many people have been prosecuted as a result?

Mr. BELGER. As a result of Avianca?

Mr. WOLF. No, as a result of any of the seizures.

Mr. BELGER. No, sir, I don't. But again, we could ask the law enforcement folks. From an aviation standpoint, it would be interesting to know.

Mr. WOLF. Okay. Good. I'd appreciate it. Thank you very much, Admiral. I appreciate it. Thank you, Mr. Chairman.

Mr. LEHMAN. Thank you, Mr. Wolf. Mr. DeLay?

AMARILLO AIRPORT

Mr. DELAY. Thank you, Mr. Chairman. Welcome to the committee, Admiral, and welcome to the rest of your staff.

The Chairman is very capable of asking the pertinent questions, so I'm going to get very parochial and ask you questions about three airports: Amarillo, San Angelo and one that is my hometown, Hull Airport in Sugarland. And please bear with me, Admiral, because I want to get this statement in the record.

In regards to Amarillo Airport, DOE has requested that the FAA further restrict the airspace around the Pandex plant in Amarillo because of recent efforts by DOE to increase overall security at all nuclear weapons facilities. However, this airspace restriction would negatively affect the Amarillo Airport.

The Amarillo Airport is heavily utilized by private pilots and military training pilots from five nearby air bases because of its clear landing approach. The nearest commercial airport is in Lubbock, which is about 100 miles away. Because of prevailing winds, 60 percent of all approaches, landings and take-offs occur on one particular runway at Amarillo. The Pandex plant is five miles from that runway and the proposed restrictions would devastate the airport, according to the Texas Department of Aviation.

In raising the airspace from 1200 feet to 6400 feet, the airport would lose four instrument approaches causing it to become a visual flight rule airport only. Losing instrument approaches would result in a loss of operating funds to the airport and a loss in commercial business. Additionally, the city is planning an airport industrial park that would also be detrimentally impacted.

To maintain the viability of the airport, it would be necessary to lengthen, widen and strengthen another existing runway and relocate the instrument approach landing system to another runway. Thanks to the necessary construction costs, clearing of land zones and the necessary environmental impact requirements, the cost to the taxpayers would be steep. The City of Amarillo has met with the FAA and public hearings have been held.

The city has stated that it is interested in pursuing proposals to restrict the airspace for helicopters and ultra lights, expand the radar service area and maintain 24-hour tower operations. However, these proposals would require additional funding as well.

Could you please update very quickly for the subcommittee the FAA's efforts to negotiate with the City of Amarillo in the Pandex security situation?

Admiral BUSEY. Yes, sir. Those meetings are a result of our working with the Department of Energy and it grows out of their concern for the security of the nuclear production capabilities there at the Pandex plant. It's a long standing issue. As I researched it, it goes back many years.

What we are in the process of doing now is the preliminaries to a rulemaking process. We have had public hearings. I believe there have been four or five public hearings attended, well attended, by more than 3000 people, the vast majority of which are in opposition, particularly the citizens of Amarillo are in opposition to the proposed creation of restricted areas by the Department of Energy.

We are going through the rulemaking process. We will be considering the comments and the inputs of the general public at large. It's a public issue. It involves security, it involves impacting the aviation access and we'll have to go through a very deliberative process before we go to a final rule that takes any restrictive action in that airspace.

I, like you, am personally concerned about the impacts on aviation particularly there in Amarillo. But there will continue to be ample opportunity for public comment and input and influence before we go to the rulemaking process.

AMARILLO DEVELOPMENTS

Mr. **DeLay**. Admiral, one thing you didn't mention in what you're considering is the cost of these—and I'm sure you are aware of them and just failed to mention them—but if there are additional costs required to comply with those restrictions, is the FAA willing to assume some of those costs and would DOE assume some of those costs or can they?

Admiral **Busey**. Mr. DeLay, I think if I can waffle out of answering that directly, I think it's too soon to deal with those issues. I don't think we're ready for that yet. But as part of the rulemaking process, an economic impact analysis will be done and costs must be addressed.

Mr. **DeLay**. I hope you'll keep me informed on those developments in Amarillo, as I know you will. And you don't even have to answer this, but how realistic is this DOE proposal, particularly in light of the fact that Pandex has had no precipitating security breach?

Admiral **Busey**. Sir, far be it for me to question the Department of Energy's concern for the security of their facilities. And I believe their concern is a real one, and perhaps that concern is generated anew as we see the spread of international terrorism around the world and perhaps as a society we should have been more attentive to security aspects for these production capabilities 20 or 30 years ago.

So I think their concern is a very real one, and I wouldn't attempt to try to challenge that now. But as part of my responsibilities to set rules that impact aviation access, we've got the public hearing process to go through and that's where we are right now.

SAN ANGELO AIRPORT

Mr. **DeLay**. Okay. Thank you. In regards to San Angelo, there are 19 FAA non-radar approach control facilities in the United States, and the San Angelo air traffic control tower is the busiest of these facilities in overall traffic, according to my sources.

In 1988, the City of San Angelo offered to provide the facilities to house the radar approach control at no cost to the FAA. And at that time, they were assured that radar would be installed. However, each year, the date is pushed back. When does the FAA plan to install radar at the San Angelo Airport in San Angelo, Texas?

Admiral **Busey**. Sir, I'm going to try to pass, if I may, to one of my professional experts here because I just don't have a handle on the San Angelo situation. Bill, can you help from an air traffic standpoint?

Mr. **Pollard**. I can respond, sir, that FAA has criteria to determine the amount of traffic that enables a location to be a candidate for radar. I don't have the immediate information before me on San Angelo. Our facilities, as you mentioned, the level 2, are also tied to the amount of traffic at the facility broken down on an hourly basis, and that's part of the qualifying criteria for the installation. I'm just not that familiar. I can provide you more information as it relates to the building.

[The information follows:]

The current schedule provides for an ASR-9 installation at the San Angelo Airport in San Angelo, Texas, in May 1992.

HULL AIRPORT

Mr. DeLay. Would you please? I would appreciate that.

Now, the important one. I refer to the airport in my hometown of Sugarland, outside of Houston. The City of Sugarland has been, as you know, in an ongoing process of buying Hull Airport since the spring of 1988 and to date, the process has included a financial feasibility study, a detailed 20-year master study and appraisals.

It has been the position of the city that the FAA should participate in the purchase of the entire airport, including buildings. However, the Fort Worth office has recently excluded those buildings and furthermore, the FAA has determined that numerous eligible items do not meet FAA requirements and therefore also will not be funded.

The bottom line is that the FAA has agreed to pay $10.5 million, substantially less than Sugarland had anticipated and less than has been discussed in the past. Now, we are going to meet with Colonel Griggs next week, I believe, and I appreciate that. I'd also like to meet with you, Colonel Griggs, earlier than that date.

Admiral, I've been in constant contact with your office regarding the Hull Airport situation. Are you aware of what's going on with Hull Airport?

Admiral Busey. Yes, I am.

Mr. DeLay. The FAA office in Fort Worth has determined that these buildings at Hull are not eligible for funding and additionally numerous other eligible items do not meet FAA requirements, and therefore would not be funded. The City of Sugarland strongly disagrees with such a rationale, and they believe that without the buildings, the airport is nothing because they are airport buildings, hangars and such. And certainly the airport could not function under FAA requirements without those buildings.

Even if the buildings are finally determined to be ineligible, there is certainly contributory value to the airport offered by those buildings, inasmuch as the review appraiser concluded that the contributory value of the buildings under the assumption that the airport will be operated in accordance with FAA requirements is at least $2 million.

I must say that I agree with the City of Sugarland. Do you have a position in this argument, Admiral?

Admiral Busey. Well, I know that we have committed the $10 million plus that you've referred to, and my position on this is that I wanted Mr. Griggs to get involved in this to see and advise me concerning the ramifications surrounding the buildings. As I understand it, the buildings do not meet our standard criteria for those that directly contribute to the airport's viability.

But I think we've got a communications issue here, and we'll get the Colonel together with you privately and then we will have the meeting coming up next week, and my feeling is that once we sit people down together we can probably do a better job of working out some of these difficult areas or at the very least we'll be able to at least more fully explain to you why these buildings don't meet the criteria.

Mr. DeLay. Well, I appreciate that and I'm looking forward to working with you. And I must commend your office—they have been very responsive and have been very agreeable. You have a fine staff and we do appreciate it.

Thank you, Mr. Chairman, for your indulgence.

REAUTHORIZATION

Mr. Lehman. Thank you, Mr. DeLay.

I know if I was trying to raise a family in Amarillo how I would try to solve the problem.

Last month, you submitted a five-year reauthorization bill for your airport and airway programs. While the fiscal year 1991 funding levels are consistent with your budget request and as we have discussed considerably above the current year, your fiscal year 1995 funding levels, including your capital investment augmentation authorization are essentially the same as those proposed for 1991.

How realistic is it to assume that an agency whose budget would have grown by over 70 percent from 1987 to 1991, assuming we okay this 1991 request, would be able to operate effectively with virtually no increase over the next four years? Doesn't your F&E peak out in 1992?

Admiral Busey. Yes, sir. In that authorization request, you're quite right. In the F&E, we're asking for $2.5 billion this year, then a step up to $3 billion and then it will drop back down in 1995 to $2.5 billion. That is the bow wave that, in my judgment, has been building up over the last several years to pay for the modernization projects in the original 1990 NAS Plan Projects.

As we get to 1995, we see a leveling off of our F&E requirements, as we shift into the Capital Investment Plan that you've heard about earlier, and our requirements should be in about that area for the next several years. So the F&E will peak and then stabilize. The airport improvement program funding that's included in the five-year authorization, we think the supplementation by opening up the possibility of PFCs will create the additional capital on an annual basis necessary to sustain that process and we think the growth that we've asked for in the R&D accounts will level off at about $190 to $200 million a year.

The growth in our budget that of course doesn't become visible in the reauthorization proposal that you've referred to will be in the operation accounts. As we continue to add people into the work force, we will have a continuing need for budget growth in the operations account.

CAPITAL INVESTMENT AUGMENTATION AUTHORIZATION

Mr. Lehman. Would you explain your so-called capital investment augmentation authorization, which you just mentioned? Is this really just a contingency or is it something that you plan to use in fiscal years 1993, 1994 and 1995? Are you still planning to establish 23 area control facilities and under what conditions would you establish additional area control facilities?

Didn't someone mention that using the flight service stations program as the criteria, that if you think you have had trouble, wait until you try to do this?

Admiral BUSEY. Yes, sir. That was mentioned this morning. The contingency—the $1 billion contingency—that you refer to that we address in the reauthorization proposal is to illuminate the fact that I am reviewing the earlier decision to consolidate all of the terminal radar approach facilities, some of the tower facilities, into our 23 centers plus the New York TRACON. Those are the 23 facilities that we're talking about as we consolidate into the 23 ACFs.

I'm reviewing that decision. I've had a study group working intensively, a large group, with several small task groups, working for the last seven or eight months since I've been onboard because I have questioned the feasibility and the prudence of consolidating into that few facilities.

We're investigating from a vulnerability standpoint. We'll be putting a lot of eggs in very few baskets so to speak, and I think from a vulnerability standpoint, the power failure to storm damage to earthquakes to hurricanes, for example, that vulnerability is something that we cannot accept in the FAA in our every day management requirements of the airspace.

So the contingency has been built in there assuming that there will be additional requirements if I change the policy direction to consolidate into 23 facilities. I'm still several months from a decision. We've been looking at human factors, we've been looking at quality of life. We've been looking at the impacts on our people. And if I decide that we cannot consolidate into that few activities, then we will need those contingency dollars to buy the additional equipment to modernize facilities that had not been planned to be modernized in the original NAS plan.

So that's the purpose of those dollars. It will cover the five-year period. There will be additional costs beyond that five-year period if we expand to more facilities than the 23 that the original NAS plan considers today.

TAX INCREASE

Mr. LEHMAN. There are several controversial proposals in your bill. Included among these are the proposed tax increases. There are many in the aviation industry and in the Congress who question the need for such increases when you have an uncommitted trust fund balance of $7 billion and a cash balance of $13 billion. In view of these balances, how can you justify these requests?

Admiral BUSEY. Yes, sir. My plan, as evidenced by the five-year reauthorization proposal, is to try to get some stability into the planning process for the FAA. I had mentioned to you earlier that we are moving into a very disciplined, strategic planning process. We decided to go and have Administration support for a five-year reauthorization period that will fold AIP, R&D and F&E together for that five year period of time, giving us some stability.

We have also, in our proposal, indicated that we want to pay for 85 percent of the FAA annual budget requirements from the trust fund and if we do not ask for a user fee increase at this time and go without one, we will bankrupt the trust fund after 1993. In 1994, our reauthorization would be over, we would have to come back and ask for further dollar availability at that time, so that's basically why we've asked for the user fee increase up front.

Mr. **Lehman**. You would use "user fee" and not use the T word. Assuming enactment of your proposed bill without the tax increase you propose, what would happen to the uncommitted balance and the cash balance of the trust fund over the next five years?

Admiral **Busey**. We'll bankrupt the trust fund in early 1994, I believe the time frame is.

Mr. **Lehman**. You mean we'd have to bail out FAA, too?

Admiral **Busey**. Yes, sir.

Mr. **Lehman**. Are you saying you would be out of cash or you'd be out of uncommitted funds?

Admiral **Busey**. The uncommitted. There will still be a cash balance, but it will be committed.

ESTIMATED TRUST FUND BALANCE

Mr. **Lehman**. Please provide a table for the record showing the estimated balances by fiscal year through 1995 with and without your proposed tax increases. Please also indicate how your capital investment augmentation authorization is factored into your estimates.

[The information follows:]

Tables showing uncommitted balances and cash balances through the fiscal year 1995 with and without the proposed tax increases are as follows:

TRUST FUND ENDING UNCOMMITTED BALANCE

[In millions of dollars]

	1991	1992	1993	1994	1995
Without tax increase	5,766	3,385	1,069	(964)	(3,117)
With tax increase	6,389	5,118	4,074	3,492	2,977

TRUST FUND ENDING CASH BALANCE

	1991	1992	1993	1994	1995
Without tax increase	14,048	12,973	11,414	9,434	7,261
With tax increase	14,671	14,705	14,419	13,889	13,355

The Capital Investment Plan Augmentation Authorization of $1.0 billion has not been factored into the estimates. Since the final number of Area Control Facilities (ACF) is not yet known, the authorization of $1.0 billion is to be set aside until needed as a contingency to fund the cost of consolidation into ACFs.

TRUST FUNDS FOR FAA OPERATIONS

Mr. **Lehman**. Your bill does provide for a significant increase in the amount of trust fund money allocated to your operations appropriation. What is the basis for this 85 percent figure that you've been mentioning?

Admiral **Busey**. We've done a lot of analysis within the FAA. The Congressional Budget Office also did an analysis, and we feel that we can detail and document very accurately the charging of aviation services provided by the FAA to users.

We believe, in consonance with the National Transportation Policy, that the user should pay for services. And therefore the cost allocation studies that we have made indicate that 85 percent of the full FAA operations—and if we consider then 100 percent funding from the trust fund for F&E, 100 percent for AIP and 100 percent for R&D, that would mean something approximating 70 percent, 65 to 70 percent, of the operations account would be funded from the aviation trust fund, at an overall 85 percent.

Mr. LEHMAN. Twelve percent of the cost of operating the system is for military, isn't it?

Admiral BUSEY. Yes.

Mr. LEHMAN. Did you ever think of asking them for money?

Admiral BUSEY. No. In fact, I believe there's past legislation that prohibits us from doing that. Dale, can you help us in that regard?

Mr. MCDANIEL. In effect, Mr. Chairman, by charging the general taxpayer the appropriated costs for the public use of the system, those are being allocated in a way as if they had been charged to DOD. So in some sense, the general taxpayer has been paying far more than their share for the use of the system. So DOD is paying their way.

PASSENGER FACILITY CHARGE

Mr. LEHMAN. Another controversial section of your bill is your proposed passenger facility charge or head tax. Would you explain briefly how this charge would be imposed, collected and spent?

Admiral BUSEY. Yes, sir. We would envision the larger airports in our country would find this attractive. They would be able to charge up to $3 per passenger passing through their airport, with a maximum of two charges for a trip. If a passenger were travelling through a hub, for example, en route to another destination, he could only be charged twice, to a maximum of $6.

Those monies would be collected through the airlines by adding that charge onto the tickets. They would be reimbursed for the normal administrative charge of processing that collection of that tax, and they would provide those funds then to the local airports.

The dollars would be controlled locally, managed by the local airport authority and be used for on-airport capacity improvements, using basically the same guidelines and restrictions that we require through the airport improvement grant program.

Mr. LEHMAN. Which airports do you believe would use this type of financing and why can't their needs be met through regular airport grant programs and other existing finance mechanisms, such as issuing bonds?

Admiral BUSEY. We think that the larger airports, the 50 largest airports, would be the airports most likely to use the passenger facilitation charge feature. We calculate that they could raise up to $1 billion a year, thereby creating a revenue stream at that airport which would enable them to go to the bond market and leverage that market for a stream of funding through the bonding process and they would have then a revenue stream to demonstrate that they could carry the financing charges of those streams.

This would give us significantly more capacity improvement money than the Federal Government is now able to provide to those airports through entitlement and discretionary funds.

Mr. LEHMAN. According to recent testimony, about one-half of the estimated airport capital development financing needs are at the 29 large hub commercial service airports. Both the CBO and OTA have indicated that these airports, as well as medium size airports, are in good financial condition and enjoy sufficient, often ample, revenues to assure their creditworthiness in the municipal bond market.

What information do you have indicating that these airports where congestion and delays are of great concern are not capable of paying for most or all the modification and expansion costs from their own resources?

Admiral BUSEY. May I call on Mr. McDaniel to try to deal with that one for me, sir?

Mr. MCDANIEL. Mr. Chairman, theoretically I think the answer is those airports, we wouldn't disagree, are capable of meeting the financing needs, but they have not produced the revenue streams necessary based on the historical bond performance. In fact, it's fallen far short of what's necessary for the next five to ten years.

What the passenger facility charge does is free the theoretical capital the airport has, puts it to practical use so that they can issue the revenue bonds and therefore unleash the potential which exists.

AIRPORT CAPACITY FUNDING COMMITTEE

Mr. LEHMAN. What information has been developed by the airport capacity funding committee and when do you expect to receive a final report from this committee?

Admiral BUSEY. That committee was requested by the Congress. As you know, Mr. Chairman, it was a committee subordinate to the Secretary of Transportation. That committee, I understand, has reported out in the last several days to the Secretary with a draft report and the Secretary he will be in the process of sharing that with us, providing comments, and then submitting his response to the Congress, I would venture within the next 30 to 45 days.

PASSENGER FACILITY CHARGE

Mr. LEHMAN. The FAA wants to put these passenger charges on, the airport operators seem to want it, but the airlines probably don't want it because they would have to do the collecting. Could you maybe sweeten the pot a little bit for them to get them to go along with you on this? Maybe this is a way to do it, as it's done in some other countries. It seems like there would be some practical way to keep everybody happy with this situation.

Admiral BUSEY. Well, I think the issue is perhaps one of control right now. The airlines may not be enthusiastic about seeing the local airport authorities having the opportunity to generate a revenue stream through a passenger facility charge. But I think that working with airport authorities, and we'll certainly encourage this, assuming we can get the prohibition taken off the PFC, I think through communications, through working together, the airlines could see the benefits to the future growth of the airport that these increased funding streams might provide.

Mr. LEHMAN. I know in Britain most of the airports are privately owned. In other parts of western Europe, are there privately owned airports?

Admiral **Busey**. I believe there are privately owned airports.

IMPACT '88

Mr. **Lehman**. In most of western Europe and Britain the carriers themselves are owned by the government and the airports are private. Here, the airlines are private and the airports are government. It's sort of a funny mix.

Several years ago, former Administrator McArtor announced the IMPACT '88 program, which was designed to increase FAA's effectiveness and enhance public confidence in aviation. This program included eight initiatives addressing aircrew performance, airline accountability, airport development, airspace capacity, advanced technology, aviation awareness, security and agency effectiveness. While the program was focused on fiscal year 1988, it did include both short-term and long-term elements. In fact, last year it was indicated that IMPACT '88 continues to be a significant program to enhance aviation safety. What is the status of this program—is it being managed by a specific group as a stand-alone program?

[The information follows:]

Impact '88 included 48 projects, 16 of which are now completed. Of the remaining projects, 23 are scheduled to be completed in fiscal year 1990, 6 projects are scheduled for completion between fiscal years 1991 and 1996, one project was canceled, and two projects were transferred out of the Impact '88 unbrella. Impact '88 is not managed by a specific group as a stand-alone program. Highlights of Impact '88 project status follows:

Aircrew Performance

Final rule issued January 5, 1989, requiring airborne equipment which provides windshear warning and escape guidance to be installed in all "turbine powered" airplanes manufactured on or after January 1, 1989. Those manufactured previously must have equipment retrofitted by January 4, 1993.

Final rule issued on January 5, 1989, for installation and use of Traffic Alert and Collision Avoidance System (TCAS) in certain airplanes.

Airline Accountability

Advisory circular covering all facets of Helicopter Emergency Services (HEMES) operations was printed and distributed of December 1, 1989.

Airport Development

Projects to be completed this fiscal year.

Airspace Capacity

Inspection Program for Production Approval Holders (Operation SNAPSHOT) completed all inspections (totaling 88) as of January 30, 1989 to assure continued efficacy of the Production Certificate Program.

Expansion of the National Aerospace Performance Reporting System (NAPRS), a unified system to provide FAA managers with information of previous day's NAS performance, was completed on June 28, 1988.

All Air Route Traffic Control Centers were made operational on an enhance conflict alert function Mode C Intruder (MCI), on January 10, 1989.

Advanced Technology

Final report on a review of the aviation system beyond 2010 prepared by a Community Conference and Workshop on the 21st Century ATC System was completed on March 21, 1989.

Aviation Awareness

Ongoing efforts.

Air Transportation Security

A final rule requiring foreign air carriers operating to or from the U.S. to submit a written security program to the FAA for acceptance by the Administrator was effective on April 17, 1989.

Improvements have been made in the preboard passenger screening system including higher pay and incentive awards programs for screeners.

Agency Effectiveness

An airway facilities recruitment and training plan to enhance the airway facilities technician work force was completed on January 10, 1989.

A total of ten focus group meetings were held during FY 1988 to discuss major issues of concern in their work environment, to apply brainstorming ideas, and to come up with recommendations related to the issues.

Implementation plan for increased authority for FAA to make acquisition decisions was distributed within FAA on May 26, 1988.

On September 30, 1987, the Secretary delegated authority to the FAA Administrator to fill key managerial positions more expeditiously.

Two studies were completed for modernizing air traffic controller training with an emphasis on the use of advanced training technology to produce well qualified FPL controllers in the most expedient and efficient manner.

Mr. LEHMAN. Which initiatives have been taken over by other programs? If any initiatives have been terminated, for what reasons?

[The information follows:]

All the initiatives included in the Impact 88 program not already completed are ongoing and have been integrated into a broad range of FAA activities and operations. There may have been some "fine-tuning" of individual initiatives as warranted by changing circumstances, but there has been no change in the fundamental direction of any. There are no plans to discontinue implementation of any Impact 88 initiative.

MANAGEMENT IMPROVEMENTS

Mr. LEHMAN. Have you undertaken any management improvement initiatives during the past year? If so, what have the results been?

[The information follows:]

Yes. The Washington headquarters was realigned to streamline and strengthen FAA's acquisition process by consolidating functions under a new Executive Director for Acquisition. This realignment also included changes to strengthen ties between R&D and system changes and implementation and to strengthen program director and program manager concepts for NAS development. A second initiative was the establishment of an FAA Executive Board to better focus FAA's top management on matters involving agency policy, budget, external relations, and other critical issues which affect agency operations. Another important initiative was the introduction of a Total Quality Management (TQM) philosophy in FAA. TQM is an evolutionary process that places emphasis on serving customers and stresses continuous improvement. It results in a cultural change to the organization and ultimately brings about improved quality of products and service at less cost. The results of these initiatives are not immediate and are not readily measurable, but we are convinced that they will create a substantial improvement to the efficiency of operations and the quality of our service.

AVIATION SAFETY

Mr. LEHMAN. According to the NTSB, U.S. airlines had 11 fatal crashes last year, the most in any one year since 1968. On the other hand, general aviation fatalities were below the 1988 level. What is your assessment of aviation safety?

Admiral BUSEY. Last year, of course, was a tragic year for us in terms of fatal accident and fatalities. Of those 11 accidents reported by the NTSB, 3 of them were non-passenger related fatalities, they were ground handling tragedies.

But when I look at the statistics overall, Mr. Chairman, on the long haul, particularly since deregulation, all of the trends are going in the right direction. Safety is improving. Each year, the operations are getting better from the part 121, the large air carriers, to the commuter carriers, to the air taxi operations and particularly in general aviation. I believe last year was the seventh year in a row that the general aviation accident rate had decreased.

We feel very positive about that from the standpoint of the FAA. Our work is not done; our objective is zero accidents. So we've got a lot of work ahead of us to keep those trends coming. But we feel very positive about the accident trends and see no cause for alarm today.

Mr. LEHMAN. Two years ago, the Aviation Safety Commission concluded that the present government safety regulatory structure is inadequate to deal with future growth and technological change. What is your view? How well do you believe your agency is prepared to deal with the safety problems of the future?

Admiral BUSEY. One of the recommendations of that commission was that the FAA create a safety czar. My predecessor elevated aviation safety to a position reporting directly to him. The deputy administrator of that organization is here with us today.

I feel very comfortable with the actions of my aviation safety organization, the oversight they provide from a standpoint of our internal functions as well as overseeing our external functions, so I think administratively and professionally we have the tools available to us to provide the safety oversight and the contributions that we, the FAA, need to make there. We can't let our guard down, but I have no reason for concern organizationally today.

ADVANCED TECHNOLOGY

Mr. LEHMAN. What impact do you believe advanced technology will have on future aviation systems, engines, and airframes and to what extent are you monitoring these advancements?

[The information follows:]

Advanced Technology will have a significant impact on future aviation systems, engines and airframes. These impacts result from current research in advanced digital electronic systems, materials technology (both metallic and non-metallic materials), and computer aided design/computer aided manufacturing (CAD/CAM). The Federal Aviation Administration (FAA) is monitoring, as well as actively participating in, these advancements in several ways. First, through the use of our National Resource Specialist (NRS) Program, now entering its tenth year. Part of the NRS function is to maintain close and continuous contact with representatives of the aviation industry, professional societies, academic and research institutions. The FAA maintains an active participant in research activities of the National Aeronautical Space Administration (NASA) and the Department of Defense (DOD) through the Technical Center in Atlantic City, New Jersey. In addition, our engineering staff participates in the committee efforts of the Society of Automotive Engineers (SAE) and the Radio Technical Commission for Aeronautics (RTCA), as well as other groups.

Mr. LEHMAN. There is continuing concern about the potential——

Mr. COUGHLIN. Mr. Chairman?

Mr. LEHMAN. Mr. Coughlin?

Mr. COUGHLIN. Before we get to that, could I ask a couple of questions?

Mr. LEHMAN. I yield to Mr. Coughlin.

FLIGHT CREW SUBSTANCE ABUSE

Mr. COUGHLIN. First, just a follow-up question on what we were talking about earlier on the drug and alcohol question and random testing. Do you have any evidence other than the recent incident that there is a substantial misuse of drugs and alcohol by flight crews?

Admiral BUSEY. No, sir. We have no evidence that indicates that we have a major drug problem in the aviation industry from the standpoint of the flight crews. We don't have a statistical base to use for that. The random drug testing and the regular drug testing procedures that just went into place last December on the major air carriers and are going into place this year on the smaller carriers will begin to generate that data base for us, but today, I have no reason to expect that we have a drug abuse problem.

HAZARDOUS MATERIALS

Mr. COUGHLIN. And a number of news reports have raised the subject of hazardous materials aboard aircraft and pose questions about the adequacy of FAA enforcement of that. What are the rules about hazardous materials on aircraft and flights?

Admiral BUSEY. I would comment first and then I'll turn to my colleagues for some more detailed help. But I'm aware of that criticism, and I can also tell you that we've spent a lot of time internally in the organization discussing our posture and the speed with which we're taking action in response to that. Monte, can I ask you to help me there, and then perhaps Greg can add a few words from a legal perspective.

Mr. BELGER. The basic answer to your question is that there are regulations in the Code of Federal Regulations that prohibit the carriage of hazardous materials. They are investigated by our security staff.

One of the problems that we've had, and I think this is what the criticism is more directed to, is our inability to process the enforcement actions related to those hazardous enforcement cases as quickly as we would like to. Our counsel's office has tried to focus on that, it's a question of resources and priorities and, as the administrator said, we have brought that to the front burner and I think we're going to be able to process those more quickly.

Mr. COUGHLIN. Do you have any recent enforcement actions that you can cite?

Mr. BELGER. For the last three years, I think, on the average, we have investigated several hundred hazardous materials cases a year. Our counsel can probably be more accurate than I, but there are dozens of cases each year which result in enforcement actions.

Admiral BUSEY. We have recently taken some action against a carrier for carriage of hazardous materials. You might want to relate that, Greg.

Mr. WALDEN. We are averaging around 70 or 75, I believe, civil penalty actions each year resulting from investigations that hazardous material shipments have violated safety regulations. Within the last year, the agency initiated at least two cases seeking six-figure amounts from shippers. One of the cases is close to settlement, the other case to which the administrator referred was recently initiated.

These are the largest totals sought by the agency in its history, and with the rededication of resources to these cases, we will see an increase in the number of cases initiated.

HAZARDOUS MATERIALS ENFORCEMENT

Mr. COUGHLIN. For some years, the FAA has been plagued by complaints about lack of uniformity in the ways the regulations are enforced. The then-FAA administrator Admiral Engen directed agency officials to examine enforcement and develop some guidelines so every region would know the maximum penalty applicable for each particular type of offense. Many times, the maximums were applied as the norm, with little regard for the particular circumstances of an incident. Is something being done about that situation?

Admiral BUSEY. Yes, sir. When I first came aboard, I, as part of my Outreach Program, talked with a lot of representatives of the aviation community and I very quickly learned that there was a lot of antagonism out there in the user community against the FAA because of the way we were enforcing the procedures. We were viewed as immediately proceeding towards legal enforcement action, the imposition of fines, etc.

We conducted a series of public hearings throughout the country, got some factual information instead of the emotional inputs that I had been hearing, and early this year I announced a change in our enforcement policy. I announced the process that we were moving towards where we were putting more flexibility and more authority in the hands of our field inspectors to deal with violations.

We were encouraging the use of corrective instruction, remedial training, if you will, administrative procedures, and would fall back to consider using legal enforcement actions as one tool in our quiver, so to speak.

That was well received. The attitudes have changed. My ultimate objective is compliance with the rules. I'm not interested in enforcement or collecting fines if we can get compliance through other processes. We're in the process of shifting to that new policy. We're getting very positive comments from the field, both on the part of our own field inspectors and from the user community. And next year, I should be able to come back to you with some good measuring tools to tell you how well we've done with that shift.

Mr. COUGHLIN. I do have a list of questions for the record on the subject of hazardous materials, which I'll submit. Thank you, Mr. Chairman.

AGING AIRCRAFT

Mr. LEHMAN. There is a continuing concern about the potential safety impact of our aging airline fleet. The average age of the airlines' nearly 4000 jets is about 12 years with 31 percent being over 20 years old. According to one article, over half of the 850 DC-9s have exceeded the 40,000 take offs and landings which they were designed for. I know your agency and the industry have taken actions to address this problem. How about bringing us up to date?

Admiral **Busey**. Yes, sir. Let me say that from my perspective, our maturing aircraft inventory, I've been using that term rather than "aging aircraft", but they're synonymous.

Mr. **Lehman**. I feel the same way about myself. [Laughter.]

Admiral **Busey**. A maturing aircraft can be flown indefinitely, in my judgment, if it's properly maintained. And our emphasis, as you know, over the last couple of years has been to change the procedures with which we are inspecting and requiring compliance with changes in the maturing aircraft fleet.

And I might now turn to Mr. Broderick and ask him to update you on some recent actions that have taken place since last year's testimony.

Mr. **Broderick**. We have, in fact issued the airworthiness directives for the entire Boeing fleet of aircraft to prevent fatigue-related damage. Those final rules have been issued. We have proposed rules for the Douglas aircraft, and we expect to issue final rules shortly. We will propose rules for all other models this year.

We have also proposed a new corrosion control program to apply across the board to all aircraft, again going model-by-model and manufacturer-by-manufacturer. We've started with Boeing and recently proposed those rules. I think we're well along on our way to getting a handle on the problem, sir.

Mr. **Lehman**. I don't quite understand your answer, Admiral. You say that a properly maintained airframe can last forever?

Admiral **Busey**. Yes, sir. Properly maintained, we can fly it indefinitely. Now, we'll have to replace parts, we'll have to replace panels and it will have to be thoroughly inspected at frequent intervals.

Mr. **Lehman**. That reminds me of the story of the guy with the 25-year old jackknife—he replaced 15 blades and 40 handles, but he still had the same jackknife.

Admiral **Busey**. Yes, and that may be what is required on some aircraft. But again, it depends on the environment they're operating in. One that's operating out of Hawaii, for example, in a salt water environment, is going to have more corrosion problems than one operating in a desert environment.

Mr. **Lehman**. But the metallic changes from vibration and other things are still going on. If you're using the same airframe, it eventually has to have a deteriorating effect.

Admiral **Busey**. Well, it does but if we change the major components, the landing gear—if we change the skin that may be fatiguing because of the cycles that an aircraft goes through—and change as it goes along some of the structural members——

Mr. **Lehman**. It's not like the old one-horse sleigh, it doesn't all fall apart at the same time.

Admiral **Busey**. But again, the impetus in the industry with the growth that we're experiencing is to be amenable to those kind of repair actions, because it's still cheaper to repair, even though you're replacing major components on a frequent basis on an older or maturing aircraft, it's less expensive to do that than it is to buy a new aircraft. And as long as that bird is well maintained, it's perfectly safe.

AIRWORTHINESS DIRECTIVES

Mr. **Lehman**. Please provide for the record the airworthiness directives and notices of proposed rulemakings that have been issued along with any others that are under consideration.

[The information follows:]

The following is a list of airworthiness directive (AD) final rules and notices of proposed rulemaking that have been issued concerning the aging aircraft fleet:

Final Rule AD 90-06-09, Amendment 39-6488, Docket 89-NM-60-AD, Boeing Model 727 series airplanes.

Final Rule AD 90-06-02, Amendment 39-6489, Docket 89-NM-67-AD, Boeing Model 737 series airplanes.

Final Rule AD 90-06-06, Amendment 39-6490, Docket 89-NM-68-AD, Boeing Model 747 series airplanes.

NPRM AD Docket 89-NM-196-AD, McDonnell Douglas Model DC-8 series airplanes.

NPRM AD Docket 89-NM-197-AD, McDonnell Douglas Model DC-9 series airplanes.

NPRM AD Docket 89-NM-198-AD, McDonnell Douglas Model DC-10 series airplanes.

NPRM AD Docket 89-NM-268-AD, Boeing Model 727 series airplanes.
NPRM AD Docket 89-NM-269-AD, Boeing Model 707/720 series airplanes.
NPRM AD Docket 89-NM-270-AD, Boeing Model 737 series airplanes.
NPRM AD Docket 89-NM-271-AD, Boeing Model 747 series airplanes.

In addition, the following model airplanes are being considered for AD issuance in the future:

Lockheed Model L-1011.
Fokker Model F-28.
British Aerospace Model BAC 1-11.
Airbus Model A300.
Convair Model 580.

AIRCRAFT MAINTENANCE

Mr. **Lehman**. To what extent do you believe our aircraft repair industry will be able to absorb this added work?

Admiral **Busey**. We think the industry continues to expand and will be able to absorb the added work. My big concern is that we continue to develop and qualify the technicians necessary—the maintenance technicians necessary to perform the work.

We see the large airlines building new maintenance facilities. As we speak we are not having difficulty hiring the experienced talent that we need to operate those facilities. But I am concerned in the next 10 or 15 years that we may evolve into having a shortage of maintenance technicians to perform the work that we need to have done. We're trying to get ahead of this through some of our training programs and educational programs, but I'm concerned and we're beginning to watch that very carefully.

Mr. **Lehman**. Do we do a lot of maintenance for overseas aircraft in this country?

Admiral **Busey**. Yes, there is. And I might ask Mr. Broderick to give you a view on that.

Mr. **Broderick**. Yes, unfortunately what's happening is that the industry has decided—at least on the West Coast and in the Southwest is to forego that because of their own demands. For example, at United, it's no secret to take the entire Oakland maintenance base that they purchased from World Airways, I guess it was, and devote it to internal United work rather than all of the Pacific rim countries work that they were doing. So effectively, we're having difficulty expanding the maintenance industry in the United States fast enough.

Mr. LEHMAN. This is a way we can help our trade imbalance and we're not doing it.

Admiral BUSEY. Absolutely. Yes.

Mr. LEHMAN. Obviously, the financial requirements to either replace older aircraft or spend increasing amounts for maintenance has implications on safety and competition. Have you examined this issue and, if so, to what extent does it concern you?

Admiral BUSEY. We have examined it, and again the maintenance performed well and frequently on a maturing aircraft is still less expensive than waiting their turn in the queue to buy a new aircraft. We watch it constantly. We're increasing our inspection force so that we can provide more over the shoulder oversight on those repair activities, and we feel we have a good handle on that situation and we're not unduly concerned.

Mr. LEHMAN. As you know, maintenance spending changes as a percentage of total expense—from 12.5 percent in 1978 down to 9.2 percent in 1982, back up to 11.5 percent in 1988. To what extent do these percentages correlate to industry profits?

Admiral BUSEY. I'm not sure that I can give you a view on that, sir. I've not done that.

Mr. BRODERICK. I think that what we see is we don't know of any correlation to industry profit. What we can see is a direct correlation to things like the age of the aircraft fleet, and perhaps more important, the amount of capital equipment that they're buying. It seems that the split between capital investment and operating costs and maintenance is the thing that drives the form 41 data—when you look at that and derive that data—more than any one single thing.

AIR CARRIER FINANCIAL STABILITY

Mr. LEHMAN. Last year, we were told that you increase your surveillance when you have financial concerns about an airline. Have you established any correlation between financial stability or instability and maintenance expenditures?

Admiral BUSEY. No, we have not. You're right, we do increase our surveillance when we're aware of financial difficulties that an airline is having, but we see no correlation as you suggest.

SIOUX CITY DC-10 CRASH

Mr. LEHMAN. It's my understanding that, following the DC-10 crash in Sioux City, you established a task force to look into what can be done to prevent engine failures. What's the status of this effort? Has the task force made any recommendations?

Admiral BUSEY. Yes, sir. There were actually two task forces established: one to look at engine problems, as you refer to; the other to look at survivability of the airframe in flight after a catastrophic failure. The recommendation of the engine task group immediately or very quickly led us to take actions to inspect all General Electric engines of the same type that had the catastrophic failure on United 232 in Sioux City last year. We did on-wing inspections, ultra sound inspections of all those engines, the CF-6 engines. Those inspections are 100 percent complete now.

We have also required that all of the titanium discs on the front end of those engines go through an immersed ultra sonic inspection and we're better than 55 or 60 percent complete with those inspections. The rest of them will be finished the end of this year.

The other task force that was looking at catastrophic failure very quickly came—and this was an industry-FAA effort on both of these groups—the other group came up with a hydraulic fix for the DC-10 that would provide the cockpit crew some hydraulic fluid so they could maintain control of the aircraft in the event of a similar catastrophic failure. That requirement has gone into place and we expect to see the DC-10 fleet equipped within——

Mr. BRODERICK. About a year.

Admiral BUSEY. About a year.

ENGINE CONDITIONING MONITORING SYSTEMS

Mr. LEHMAN. Legislation, H.R. 3290, has been introduced to require the installation and use of engine conditioning monitoring systems on commercial aircraft. I believe that the Air Force uses engine monitoring systems. What is your view of the effectiveness of these kinds of system and what is your position?

Admiral BUSEY. The Navy also used condition engine monitoring systems and I'm very familiar with it from that standpoint. I am a personal believer and a strong supporter—all of the new aircraft that are coming into the inventory in the last several years have condition monitoring types of capabilities. The airline operators so equipped with those aircraft regularly use this data in their maintenance operation.

We know thus far that technology cannot economically install similar sensors in the older engines. We continue to work with industry and if such a sensor capability can be retrofitted to the older aircraft, then we're going to take a strong look at requiring that because of the value of these monitoring devices to predicting future failures.

Mr. LEHMAN. Are you taking any special or additional actions to assess the continued safety of the DC-10?

[The information follows:]

In addition to those action items previously discussed, the Federal Aviation Administration (FAA) has also formed a Titanium Rotating Components Review Team. This team is reviewing all pertinent design, manufacturing, quality control, inspection procedures, and techniques in the production of life-limited titanium components. Specifically, Type I hard alpha mellurgical defects are of concern, but any other probable sub-surface or surface, micro or macro, effects that can substantially jeopardize the safe operation of titanium parts are being considered. The team expects to prepare a report with their recommendations, early this summer.

DC-10 BRAKES

Mr. LEHMAN. In a recent report, NTSB reportedly stated that your requirements for testing airline brakes were inadequate and recommended that you require new testing procedures. What actions have you taken?

Admiral BUSEY. The problem was illuminated as a result of American Airlines, I believe, 747——

Mr. BRODERICK. DC–10.

Admiral BUSEY. DC–10. I'm sorry. We took corrective action for all DC–10s very quickly to mandatorily require changes in brake systems and, Tony, could you give the Chairman an update on where we are?

Mr. BRODERICK. The DC–10–30, which is I believe the aircraft involved in the accident, was addressed immediately. We're going again, like on other things, such as aging aircraft, through the entire fleet, aircraft-by-aircraft, and we're proposing brake system changes, both to testing and to operating limits that address the NTSB recommendation.

So, we have no disagreement, we're just systematically going through every airplane type to incorporate them.

Mr. LEHMAN. Before moving to safety inspections, I'd just like to check with you and Mr. Coughlin. What I would like is to go until 4:30 or the next vote, whichever comes first. Is that all right?

Admiral BUSEY. Yes, sir.

Mr. LEHMAN. Mr. Coughlin, if that's all right, would you do some questions?

[Vote bell.]

Mr. LEHMAN. It's happening already. We'll go for another five or ten minutes. Mr. Coughlin. It's a live quorum, we can go for ten minutes.

SAFETY INSPECTORS

Mr. COUGHLIN. You are requesting an additional 300 general aviation and air carrier safety inspectors for fiscal year 1991. A similar increase was approved for fiscal year 1990. How many of the 300 safety inspectors provided in fiscal year 1990 have you hired? If there has been any delay in hiring, and if so, what is the reason for it?

Admiral BUSEY. I believe the figure for 1989, those that we've hired of the 300 is 295.

Mr. BRODERICK. We did meet our numbers last year, but, right now we have about 2305 inspectors. The implication of your question is that we're going slow hiring this year, and you're absolutely right. The reason for it is fiscal constraints. In this program, the only way we can modulate the flow of money, when we have unanticipated things like pay raises and health benefit changes that aren't funded, is to slow down the rate of hiring. So we are about the same level now, 2305 people, as we were at the beginning of the year. We'll be hiring them toward the end of the year, with the same goal still in place, which is 2575 by the end of the year.

Mr. COUGHLIN. How did you determine your requested 300 position increase for fiscal year 1991?

Mr. BRODERICK. We have had, for the last several years, a build up to get us to about 3000 inspectors, which is the 2875 number roughly that we're asking for. We had a requirement of nearly 1200, and as we discussed with the committee in past years, we broke it up into manageable parts of about 300 inspectors and 100 support positions each year.

Mr. Coughlin. Last year, it was indicated that you were on a four-year hiring program. Is fiscal year 1991 the final year of that program?

Mr. Broderick. Yes, it is. The request that we have here just about brings us to the end. We'll have, I'm sure, some minor adjustments in 1992, because of changes in the environment over the last four years.

INSPECTOR TRAINING

Mr. Coughlin. How many of your newly hired inspectors have not received your initial indoctrination training? If that is a significant number, what is the reason for this, what impact is it having on your ability to accomplish the inspection goals prescribed in your annual work plans and what corrective actions are you taking?

Mr. Broderick. Let me start by saying there is a large number, about half of them, that have yet to receive indoctrination training. But there's a much different work force involved here than there is, for example, in air traffic and systems maintenance.

The difference is that these people come in fully licensed and trained to be productive. The one thing they don't have is FAA training, so when we bring them in and they don't get the initial FAA training, it is not as if we can't use them productively. We can use them for a lot of functions, but we can't use them optimally.

The reason for not having the training is simply because of the financial constraints we had last year, and that we have similarly this year. We had to hire a bubble of people toward the end of the year. That, compounded by the fact that we are adding significantly to the work force over a short four-year period, causes a bubble in the training program.

We are this year fully staffed or putting as many people through the training program as we possibly can, and we're going to make every effort not to have any vacancies in the training classes. But because of the mismatch between hiring and the academy capacity, we are inevitably going to have that bubble for the next couple of years.

Mr. Coughlin. Is your 1991 budget sufficient to allow you to bring people on in a timely manner?

Mr. Broderick. The 1991 budget is extremely tight, and right now, because we don't have final numbers, I don't know what the answer to that question is. Depending on pay raises and things like health absorption, we may be in the same kind of situation we are in this year.

AIRCRAFT INSPECTIONS

Mr. Coughlin. A recent article quotes an aircraft manufacturing official as follows: "Their [FAA's] surveillance is primarily through monitoring of paperwork rather than observing the physical condition of the airplanes." This is similar to correspondence we received recently indicating your inspectors spent six man days inspecting a company and never addressed the condition of the aircraft or the pilots. Is there a reason why your inspectors rely primarily on paperwork examinations? Are these kinds of inspections more effective or aren't your personnel trained to actually inspect aircraft?

Mr. BRODERICK. In point of fact, in the last few years, we have, because of the staff buildup, shifted more from a paperwork emphasis back to what we think is the basic thing of interest; that is, the airplanes and the pilots. But I must tell you, that without knowing the facts, it may very well be that people went in to look at a company because they suspected for some good reason that there was a problem with paperwork and records. Those are, as you know, very important parts of the overall safety system.

But the fundamental reason we emphasized paperwork in the early to mid-1980's, is simply that we didn't have enough inspectors. That is changing, thanks in large part to the help of this committee, so we're going back to where we should have been.

AIRWORTHINESS DIRECTIVE PROGRAM

Mr. COUGHLIN. In a February 1990 report, the GAO concluded that your oversight of the airworthiness directive program is inadequate to determine whether the airlines are complying with ADs. The GAO recommended that you require a systematic testing for AD compliance as part of each routine airline inspection. Do you agree with the GAO?

Mr. BRODERICK. We agree with them that we could do a better job of documenting the amount of AD compliance that we are checking at each inspection. We didn't agree that we should do a full 100 percent audit of every airworthiness directive for every airplane. We felt that would be non-productive. But we agree with the thrust of their recommendations and have made changes already to our inspection procedures to ensure that that documentation is provided.

Mr. COUGHLIN. The GAO recently reported that you could use your operations inspectors more efficiently and thereby reduce requirements for recurrent flight training. They recommended that you reevaluate the roles and responsibilities of operations inspections. Have you taken any action to implement this recommendation?

[The information follows:]

We agree with GAO's emphasis on the importance of flight training for operations inspectors who perform flight checks and are providing training to these inspectors on a priority basis. However, in agreeing with the GAO recommendation, we are not agreeing to a new functional analysis of the roles and responsibilities of operations inspectors nor to a review of inspector qualification standards and position descriptions. We have completed these tasks under the Safety Activity Functional Evaluation (SAFE) Project, which included a comprehensive review of inspector roles and responsibilities. There is no evidence that this review is inadequate or needs to be reaccomplished. Additionally, we disagree with the inference that operations inspectors who perform flight checks are the only inspectors needing flight training. We contend that all operations inspectors need flight training to maintain operational familiarity with the National Airspace System.

INSPECTOR EMPLOYMENT LEVELS

Mr. COUGHLIN. Last year, you indicated that you believed an inspector-to-support ratio of 4.4 to 1 was appropriate. However, your projected end-of-year employment levels would provide for a ratio of about 6.13 to 1. Are you finding out that you can get by with fewer administrative support personnel?

Mr. **Broderick**. No, sir, not at all. Later on, when we get into the detailed budget justifications, you'll find that the FTE to position ratio in our request for inspectors is about 95 percent. That is, we're asking for enough money to fund 95 percent of the authorized positions. But if you look at the amount of money that is being requested for support, it's only about 60 percent.

The reason for that is that we're emphasizing the buildup of inspectors first. We're going to make, I'm sure, some adjustments in those ratios this year and next, but at the end of the buildup, the numbers will all come out to where they ought to be.

AIRCRAFT CERTIFICATION POSITIONS

Mr. **Coughlin**. You are also requesting 35 additional aircraft certification positions to meet your aging workload requirements. Will your operation and maintenance safety inspectors also play a role in monitoring and enforcing recently issued airworthiness directives relating to aging aircraft? If so, what will they do?

Mr. **Broderick**. Absolutely. It's actually a three-part team. We have manufacturing inspectors from the aircraft certification service and engineers from the aircraft certification service who work with the operational maintenance inspectors from the flight standards division in teams. These teams go out and look at airplanes so that we can get every discipline looking at the airplane at the same time. It's a three-part effort.

AGING AIRCRAFT RULEMAKINGS

Mr. **Coughlin**. Some of your aging aircraft rulemakings address the issues of corrosion and metal fatigue. Do you have any training programs to train inspectors in these areas?

Mr. **Broderick**. Yes, we do. Last year, we were successful in training about 300 of our flight standards maintenance inspectors in corrosion control for Boeing aircraft. We hope to do about 400 of them this year for Douglas aircraft.

STAFFING STANDARDS

Mr. **Coughlin**. Last year, it was indicated that you had not yet developed staffing standards for initial certification activities. What's the status of this effort?

Mr. **Broderick**. We are still validating the staffing standards that we have developed for the manufacturing inspectors. We haven't yet completed the engineering certification staffing standard, but we expect to do so in 1991. We're just starting work on it now.

Mr. **Lehman**. Thank you, Mr. Coughlin. We will recess until 10:00 a.m. tomorrow.

THURSDAY, APRIL 19, 1990.

PILOT OVERSIGHT

Mr. **LEHMAN**. Good morning. We will reconvene the Transportation Subcommittee. We will start with pilot oversight.

Admiral, last year we were told that you had an active review of all pilot training, both private and commercial. What changes have resulted?

Admiral **BUSEY**. We have made some changes since that report to you last year, sir. I will let Tony Broderick mention the details of where we stand.

Mr. **BRODERICK**. We are just a couple of weeks away from issuing a final rule on air crew qualification programs which permit the use of simulation and advanced techniques of training, both for large and smaller commuter air carriers, Mr. Chairman. We will have a second rulemaking on phase 2 of that out late this year. And we expect similar progress on the general aviation rulemakings which are coming right along.

Mr. **LEHMAN**. Flight simulators are now used extensively by the major air carriers. To what extent do the Part 135 commuter airlines use flight simulators?

Mr. **BRODERICK**. Sometime ago we issued an advisory circular on simulation and training devices that was particularly directed at small carriers. We are now having a lot more success in developing the business. Flight Safety, the major simulation training organization in the United States is beginning to buy and install simulators in their training centers. And I understand, in just a few weeks British Aerospace will have a Jet Stream, two jet stream simulators dedicated out here in the Dulles Airport area to provide that kind of training for those airlines.

So, we are moving quite speedily along in getting the equipment made available. We are also changing our rules to first encourage and then require the airlines to use this simulation over the next couple of years.

Mr. LEHMAN. How many of the commuter airlines are using flight simulators at this point?

Mr. BRODERICK. I could not give you an answer, but I can try and get some data for the record to let you know how many. I know there are dozens of them, but we do not now require it.

Mr. LEHMAN. All right. For the record.

[The information follows:]

A recent survey determined that 44 commuters use simulators in their training programs. Commuter operators using simulators tend to be larger companies flying turboprop aircraft.

PILOT SUPPLY

Mr. LEHMAN. One of the continuing concerns is lack of experience. Reportedly, about 25 percent of our commercial pilots will reach the mandatory retirement age of 60 by 1997. To what extent does this projected pilot shortage concern you?

Mr. BRODERICK. It really does not indicate a major change from what you would expect in a normal flat work force structure. If you have a 36-year career of an airline pilot, you would expect, in a perfect world, 25 percent of them to retire every nine years. So, every seven years does not indicate a very large outflow of pilots.

What we are doing though, is preparing these simulators and the new training courses so that our rules will provide for the best and most modern training available for younger pilots to replace them.

Admiral BUSEY. And, Mr. Chairman, as you know, we are also supporting very strongly, financially and from our training programs, the new pilot training courses such as exist at North Dakota and a lot of other states where pilot training is part of the academic environment at some of the universities.

Mr. LEHMAN. Are we getting an adequate supply of new pilots?

Admiral BUSEY. Yes, sir. And I think a good measure that we have had in the last year of that is when Eastern Airlines stood up, again, they basically had no difficulty filling their pilot ranks, which indicates that there is no shortage.

Mr. LEHMAN. One of the big pools of new pilots in past years has been the military. Are we getting fewer military pilots?

Admiral BUSEY. It looks like the trends are that the military is doing a better job of retaining their pilot force and I think we are seeing a decrease in the number of pilots that are moving from the military into commercial careers.

Mr. LEHMAN. After spending a million dollars to train one, it is hard to turn them loose, is it not?

Admiral BUSEY. Yes, sir.

Mr. LEHMAN. You mentioned British Aerospace out at Dulles. Why British Aerospace instead of some American organization doing that?

Mr. BRODERICK. As a matter of fact, Flight Safety was going to set up a simulation facility out in that area and had a big problem with the property taxes with the local jurisdiction and decided to set it up somewhere else.

Mr. LEHMAN. What actions are you taking to prevent inexperienced flightcrews from being paired at the same time?

Admiral BUSEY. We have been meeting regularly with all the air carriers over the past year and we are very close to putting out some rulemaking in that regard.

Do you want to elaborate anymore on that, Tony?

Mr. BRODERICK. That is right. We have had, of course, a bulletin out for quite some time now on the subject; but we are finally getting to the point where we think we have agreement on things that we can put in our regulations. It is a very complex issue.

Mr. LEHMAN. And what is the timeframe?

Mr. BRODERICK. I would expect within the next month or so to reach agreement and, then, of course——

Mr. LEHMAN. I mean as far as the rulemaking is concerned.

Mr. BRODERICK. It normally takes about a year to get a rule from the time we propose it and, unfortunately, it will probably take almost a year to get the proposal out. It is a complicated area. What we will do is, of course, seek voluntary cooperation beforehand.

Mr. LEHMAN. Right now, you are just trying to get them to do it for their own benefit.

Mr. BRODERICK. Yes, sir.

AGE 60 RULE

Mr. **Lehman**. What is your position on the Age 60 rule?

Admiral **Busey**. I do not intend to make any changes near term to that, Mr. Chairman. I have looked into it. The body of medical knowledge is just not there which would lead me to make any changes. And, in fact, what I have seen thus far, if I were to act, all the trends in the medical information indicates that we probably should lower the age.

COCKPIT RESOURCE MANAGEMENT

Mr. **Lehman**. Last year you were working on an advisory circular on cockpit resource management for training of air carrier flightcrews. Would you provide a brief summary of the final circular or rule for the record?

[The information follows:]

Advisory Circular 120-51, Cockpit Resource Management Training was published December 1, 1989. The Advisory Circular (AC) provides guidelines for developing, implementing, and evaluating cockpit resource management (CRM) training programs. CRM training is recommended as a regular part of all training for air carrier flightcrew members. The CRM training programs addressed in the AC are divided into at least three distinct phases—an awareness phase, a practice and feedback phase, and a continual reinforcement phase. Communication, situational awareness, problem solving, decision making, team management, stress management, team review, and interpersonal skills are examples of topics which the AC recommends for inclusion as part of CRM training.

AVIANCA ACCIDENT

Mr. **Lehman**. What actions have you taken to improve the communication between flightcrews and air traffic controllers since the recent Avianca accident in Long Island?

Admiral **Busey**. Following that tragedy, Mr. Chairman, in concert with the NTSB, we have put out directives to all domestic and international air carriers reminding them of the requirement for very formal procedures to be followed in the air-to-ground communications. We have also advised the controller work force again of that need for formality and provided them the details as we knew of what transpired in the Avianca situation.

Mr. **Lehman**. Nothing new has come up on that.

Admiral **Busey**. No, sir.

Mr. **Lehman**. It is sometimes alleged that pilots are coerced to fly when they are medically unable to do so. Have you found any cases that you can identify?

Admiral **Busey**. Those allegations usually occur when there are management labor negotiations underway, but we have no evidence at all to indicate that pilots are coerced to fly when they should not medically.

NATIONAL DRIVER REGISTRY

Mr. **Lehman**. Have you established a system to access the National Driver Register yet?

Admiral **Busey**. Monte, would you talk about where we are with that, please?

Mr. **Belger**. Yes, sir. We have established a system. Last year we said that we would initiate rulemaking in order to implement the procedures. And we did that in May of last year in the form of an NPRM. We got a lot of comments to that rule, as you might suspect and we are in the process now of analyzing those comments. I expect that we will have a final rule once it goes through OMB in the next month or so. If I could just follow up on that——

[The information follows:]

The status of the NPRM is unchanged. As of 5/4/90, it is still at OST.

Mr. LEHMAN. We do not know whether we have a problem there yet or not, do we?

Mr. BELGER. We do not know based upon our ability to access the driver's registry. We will, on a weekly basis, once we implement the rule, which will require an airman to complete a consent form at the time that they apply for a medical, we will access the registry about 10,000 times a week. About 10,000 applicants a week. We will know pretty quickly I think the scope of what type of problem we might have.

COMMUTER AIRLINES

Mr. LEHMAN. What was the safety record of the commuter airlines for 1989?

Admiral BUSEY. Charles, do you have that?

Mr. HUETTNER. In 1989, we had, from our latest data, there were 21 total accidents. And comparing that to this year, we are down 9.5 percent. So, we are improving. Safety is definitely getting better.

Mr. LEHMAN. Compared to your majors, on a per passenger mile basis it is a poorer record.

Mr. HUETTNER. Slightly poorer, but it is because basically the number of flight hours and so forth. But the accident trends are definitely improving, yes, sir.

Mr. LEHMAN. Are financial resources a problem with commuters?

Mr. BRODERICK. No, I do not think it is money. It is the different environment, the different kinds of airplanes and airports, and the very high ratio of flight cycles to flight hours that they experience.

GANDER, NEWFOUNDLAND ACCIDENT

Mr. LEHMAN. Did your agency conduct any investigation of the Gander, Newfoundland accident?

Admiral BUSEY. No, sir. We did not conduct that investigation. We participated with the NTSB as we normally do, but the FAA did not perform an independent investigation.

Mr. LEHMAN. Mr. Coughlin, do you have some questions?

Mr. COUGHLIN. Not at this time, Mr. Chairman.

INTERNATIONAL AIRPORT SECURITY

Mr. LEHMAN. Whenever you want me to yield.

Following the bombing of Pan Am flight 103, you imposed additional security measures on all U.S. air carriers operating out of certain airports in the Middle East and Western Europe. Last year when we discussed the fact that you had not imposed similar requirements on foreign air carriers flying to the United States, you indicated that you hoped to have these requirements implemented unilaterally by working through ICAO. How many countries currently have implemented security requirements similar to those imposed on US. air carriers? If they have not, are any additional actions planned?

Mr. BELGER. We have seen some improvement in the last year. I do not think we have seen the improvements at the rate we would like and I do not think there are many countries in the world with perhaps the exception of the procedures that apply to El Al, who are at the level that we require of our U.S. carriers. I think that the European countries are moving towards the same type of standards that we have. We will continue to work with them both unilaterally with our security folks that we are putting in place overseas and multilaterally through their organizations and ICAO.

Mr. LEHMAN. According to testimony presented last November by your former security director, aviation security in Europe and the Middle East is "seriously deficient". What is your assessment? How satisfied are you with aviation security in these regions and the actions taken by countries in these regions to improve security?

Mr. BELGER. I think there has been some improvement in that part of the world. The risk we think is still higher in certain parts of Europe and the Middle East. And that is why we have extraordinary procedures in place and required in that part of the world.

Admiral BUSEY. As Mr. Wolf mentioned yesterday, Mr. Chairman, my take is that I think because of these extraordinary procedures we put in place on U.S. carriers, the security provided by our U.S. carriers operating into and out of these locations is far superior to what we see on the other carriers.

SECURITY STAFFING LEVELS

Mr. LEHMAN. One of the actions that was announced following Pan Am 103 was the assignment of additional FAA security specialists to selected locations throughout Europe and the Middle East. We had read news reports that there had been some delays in implementing these assignments. How many more FAA security specialists are currently working on overseas airport assessments than maybe a year ago?

Admiral BUSEY. There were delays. It has taken us some time to negotiate this bilaterally with the countries concerned through our embassies. The specific numbers——

Mr. BELGER. We requested 27 additional positions in Europe. We have received approvals and are putting people in place for all but six of those positions. And we have a plan with the State Department to get those approvals in the next few months. I am comfortable with the progress we are making now.

Mr. LEHMAN. You are requesting 164 additional security positions, of which 128 are special agents that will be assigned to your security offices. How was this level determined?

Mr. BELGER. The 128 special agents that we requested, out of the 164, are based on staffing standard studies for fiscal year 1991.

Mr. LEHMAN. You are really upgrading in 1991.

Mr. BELGER. For 1991 also.

Mr. LEHMAN. Are these going to be overseas?

Mr. **Belger**. We do have plans to put a smaller number of security specialists overseas. And, of course, we will have to go through the State Department to get the approvals to do that, but we would like to put some more folks overseas in 1991.

Admiral **Busey**. In the South American countries and in the Pacific Rim.

Mr. **Belger**. Right, the Far East.

Mr. **Lehman**. But you will inform us as these move into place?

Mr. **Belger**. Yes, sir.

[The information follows:]

When we have the Department of State and the local Embassy approval, we will advise the House Subcommittee Staff Director.

TERRORIST THREAT NOTIFICATION

Mr. **Lehman**. Have any flights been canceled during the past year by either the airlines or the Federal Government because of security reasons?

Mr. **Belger**. Flights have been canceled. I can bring to mind a couple of examples. In Manila, last November because of unrest there, the situation in Panama caused carriers to cancel flights. And we get some 600 bomb threats a year which cause flights to either be canceled, diverted or passengers inconvenienced because the aircraft has to be searched or some type of investigation has to be done.

Mr. **Lehman**. Do you really have a policy or position on notifying the public of bomb threats?

Admiral **Busey**. Our overall policy is that we prefer not to immediately notify the traveling public when we get a bomb threat. We prefer to let the investigation proceed in the hands of the professional intelligence and security folks.

Of course, if we arrive at a situation where flight time is coming up and we are moving in to taking extraordinary security procedures, for example, the presence of bomb detecting dogs, sniffer dogs, or increased security, the passengers will certainly see that. And when that occurs they, in my judgment, certainly have every right to know why those extraordinary security procedures are taking place. So, they will be informed so they can then make informed decisions as to whether they want to fly on that airplane or not. The bottom line is, though, Mr. Chairman, if these procedures still leave some question in our mind, then we will work with the airlines and suggest to them to cancel the flight and, lacking that, we will terminate it ourselves.

Mr. **Coughlin**. Mr. Chairman?

Mr. **Lehman**. Mr. Coughlin.

PAM AM 103

Mr. **Coughlin**. I know the relatives of the victims of the bombing of Pan Am 103 were very critical of the policy of not announcing terrorist threats. Do you have a formal policy that is posted or that passengers can be made aware of what the policy is as to notifying passengers of threats?

Admiral **Busey**. The basic policy is that we will not notify in the event of threats. We will continue to work it through the intelligence process, develop the validity, the credibility of the threat. And when all of those bits of data begin to come together with strong correlation and credibility as to the flight specifics, the flight number, the source of the information that is provided to us from other intelligence agencies, then we move into the judgment path of notifying people and/or taking actions to cancel the flights, themselves.

But we have no policy that is stated in writing. There are procedures that are in the confidential special security plans that each airline operates under from a security standpoint. There are step-by-step notification procedures and actions that they take in consort with us and with the other intelligence agencies, but there is no visible and publicly stated sign that we can put up to tell people that this is what we will do and will not do.

TERRORIST THREAT NOTIFICATION POLICY

Mr. COUGHLIN. Would it not be advisable to have some sort of policy that said that as a matter of policy that if there is a verifiable terrorist threat against an aircraft that you will notify the passengers?

Admiral BUSEY. Again, in practice, Mr. Coughlin, I think that is what happens. Let us look at the situation with the Northwest flight from Ireland where there was a telephone call, we know now in retrospect, made by a young person who did not, in fact, want to take that flight back to the United States and go to school. That was handled in intelligence channels initially. Once it came out of intelligence channels, I think the airline prudently took steps to notify its passengers and the procedures that took place. They lost some business because of that, but the prudent step of notifying passengers when a specific threat had been made was followed there.

Then we had the other case of the TWA out of Paris, where extraordinary security procedures were put in place. The public was notified there. They had not very many passengers flying on that aircraft, and it, in fact, was probably the safest aircraft flying anywhere that day. So, effective steps are taken without a formal policy of saying we will or we will not notify passengers.

Each case has to be looked at on an individual basis, because as Mr. Belger said, we get some 600 bomb threats per year that are called in either to the press, to the airline, or to our offices. One has to look at each case on a case-by-case basis.

Mr. BELGER. Admiral, I am sorry. If I could, just for the record. The flight from Paris that was referenced was a Northwest flight. And the first example was a Delta flight.

Admiral BUSEY. A Delta flight. Thank you.

Mr. COUGHLIN. Thank you, Mr. Chairman.

Mr. LEHMAN. Mr. Wolf?

Mr. WOLF. Thank you, Mr. Chairman.

Just to follow up on that, the young person that you mentioned, was he prosecuted?

Admiral BUSEY. He is being prosecuted, as I understand it, through the Irish legal system.

Mr. WOLF. Is he an American citizen?

Admiral BUSEY. No. He is a citizen of Ireland.

AIRPORT SECURITY PROSECUTIONS

Mr. WOLF. Have there been many prosecutions?

Admiral BUSEY. I know you asked that yesterday, and, Mr. Belger—we have got to promise to get back to you on those details.

Mr. WOLF. Well, I want to thank you. You called earlier today, and I thank you. I was very impressed. On the record, I want to show Admiral Busey called.

Admiral BUSEY. Do you have that data yet, Monte?

Mr. BELGER. No. The question yesterday, I think, was more towards drug types of arrests.

Mr. WOLF. Yes, that was drugs. I was thinking more of that.

Mr. BELGER. There are prosecutions for bomb threats. As you know, every bomb threat is a criminal offense, Federal, and in most cases, it is also a state or local offense. We do not have a repository of all the convictions or criminal follow-ups on those. I can tell you that to the extent that we are involved, we encourage the airlines to file charges. We work closely with the law enforcement folks to give them assistance in the investigations.

I can recall a couple of examples where bomb threats were made even against our own facilities where we have worked with the local law enforcement folks and were successful in making arrests. It is difficult, obviously, when you are usually talking about anonymous callers.

TELEPHONE SECURITY

Mr. WOLF. Well, I wondered about that. Have the airlines installed the new AT&T system whereby the number shows up that is called?

Mr. BELGER. I am not aware that any of the airlines have done that. I do know that the law enforcement people, obviously, have the capability of tracking calls.

Admiral BUSEY. And we have discussed it within FAA and are considering taking those steps at some of our facilities.

Mr. WOLF. I would encourage you to do that. I think there are some concerns with regard to this system with regard to the question of privacy. But I do not think that that would hold true in a case of the FAA or with regard to the airlines. And I think it is something that ought to be considered. All the airlines, I think, ought to have this system so that automatically when a telephone call is made the number prints out, just as a security check. I think it would be very, very helpful and to notify the public in a very public way that this is being done. When you call the airlines, your number is being recorded. I think it would be a very positive thing. I am sure a lot of the calls are crank calls and there are no bombs on board. I think tough prosecution there will make a difference. Maybe we should write the airlines and ask them to install these telephones. They are not very expensive to do.

The other question is have you been in touch, in contact with the KGB, any of the security forces in the Soviet Union with regard to——

Mr. **Belger**. Our security staff meets regularly with our Soviet counterparts. We have visited the Soviet Union. We have done inspections of airports. They visited us in the last three months for an exchange. We have a formal agreement on the exchange of information and we have worked in the last few months to improve our communications capability during emergency situations directly with the Soviet Aviation Security officials.

SOVIET AVIATION OFFICIALS

Mr. **Wolf**. Is there a counterpart to Admiral Busey in the Soviet Union?

Admiral **Busey**. Yes, there is.

Mr. **Belger**. And there is a counterpart to our Security Director, also, whom we work with.

Mr. **Wolf**. They are kind of compartmentalized in the Soviet Union, and information does not always flow. I wonder if it would not be valuable enough to see if there is an opportunity for our intelligence people to work with their intelligence people on a case like this, a hijacking case or something to demonstrate the opportunities. And maybe they have information through the Middle East, with Syria and other countries that we would not have. I think that ought to be pursued to see if there would be an opportunity to work together in this era of glasnost where we are all working together.

When would their people be coming over?

Mr. **Belger**. We meet at least on an annual basis. We also, the last two years, I think, have met on a semi-annual basis. I do not think there would be anything formally scheduled until much later this year, or early next spring.

Mr. **Wolf**. Do you know if they have had major problems with bomb threats in the Soviet Union and the Eastern Bloc?

Mr. **Belger**. I do not know that. My thought is based on what I do know is that it is probably not a major problem.

Admiral **Busey**. They have had some hijacking problems.

Mr. **Wolf**. Yes.

Mr. **Belger**. They have with individuals, obviously, wanting to leave.

Mr. **Wolf**. I visited Perm 35, which is the last Soviet gulag, this summer. And I interviewed the prisoners. There were 38 political prisoners there, but some are in a marginal case of hijacking. One individual had hijacked a crop duster plane, and is he a political prisoner, or is he a criminal. It is a very difficult thing. It is a hard case to make with the Soviets, because you clearly do not want to do anything to encourage hijacking.

Well, anything that we do, if there is a group coming in from the Soviet Union, I would be interested in chatting with them. So, if you know when they are coming in, you could let me know.

Thank you very much. Thank you, Mr. Chairman.

EXPLOSIVE DETECTION SYSTEMS

Mr. **Lehman**. Thank you, Mr. Wolf. The second major component of your security program was the required installation of explosive detection systems. How many TNA, thermal neutron analysis, devices have been installed and what is your schedule for installation of additional explosive detection systems?

[The information follows:]

There are currently two TNA systems installed. The first TNA was installed at JFK International in the TWA baggage area and became operational in September 1989. The second TNA was installed at Miami International in the Pan Am baggage area and became operational on April 26. We have just concluded negotiations with the British Airport Authority to install the third TNA system at London Gatwick in the concourse area. We plan to install that system next month and expect to have it operational in time for the summer traffic rush. It will be used primarily for U.S. carriers, but may also be used by other carriers departing to the U.S. if capacity is available.

We intend to install the fourth system at Dulles International in the United Airlines concourse area. We are still in negotiations with airport management and the carrier, but we have every reason to believe we will be successful in placing the machine on the concourse in the next several months. We are working with the Federal Republic of Germany to place the fifth system at Frankfurt to handle baggage for U.S. carriers.

We are still in the process of deciding where we would like to place the sixth system. Several foreign and domestic sites are under consideration. We have had a request from a foreign government for us to loan that device to them at their expense for a period of time this summer to assist them with internal security, and we will be giving that request consideration.

Mr. LEHMAN. Last year we were told that one TNA manufacturer could produce at least 50 units per year. Will they be able to meet this production level, and are there other manufacturers producing detection systems that meet the criteria?

Admiral BUSEY. We believe that the one manufacturer that has indicated he can produce up to 50 a year once the production line gets started can indeed produce at that rate and can then proceed beyond that.

We have indications now that the French in partnership with a U.S. firm will also be evolving into a production capability later this year.

Do you want to add to that, Monte?

Mr. BELGER. No, sir. I think that is accurate.

Mr. LEHMAN. Is this French device using the same type of technology?

Admiral BUSEY. It is the same technology, the thermal, the fast thermal neutron technology. It uses a different method of generating the neutrons. Instead of a radioactive source, it uses an electronic source of generating the neutrons.

Mr. WOLF. Would the Chairman yield?

Mr. LEHMAN. Mr. Wolf.

Mr. WOLF. Are the Japanese involved in research and moving ahead in this?

Admiral BUSEY. Yes, they are.

AMERICAN TECHNOLOGY COMPETITIVENESS

Mr. WOLF. This is what concerns me. And I did not get into the whole line of questions yesterday, but here we have an American manufacturing operation, employing American employees, the same way the American airlines would like to have it. And the longer we delay and the longer we do not move ahead and be on the cutting edge, this technology, as in high definition television and others, gets transferred out and, so, what we are going to have—and I will predict—in three to five years, unless we move aggressively ahead, we will have these machines in every airport, and they will have a French name on it, or they will have a Japanese name on it, and the Americans will be left in the dust.

We just really ought to be thinking in terms of how can we help American companies. Not "Buy American". Not "Trade in tariff and barriers". But to be competitive and on the cutting edge. And I think this is something that this committee ought to be concerned about and others. If we just delay on this, not only do we have the danger to individuals, but we give the opposition an opportunity.

How close are the French? One year away? Six months?

Admiral **Busey**. They intend to have a test device in their airport in September or October is the latest information we have.

Mr. **Belger**. The French are actually working with a U.S. company, a company called Gamma Metrics. They plan to produce a machine which is almost identical to the TNA machine that we have developed. They also plan to produce a machine which uses an electronically generated neutron source. And they also intend to produce another generation of machine which is a so-called "fast neutron machine."

But I agree with your point. There is no question right now that the United States is the leader in the development of explosive detection technology. And we certainly do not want to lose that position.

Mr. **Wolf**. And I think if we delay, we will lose it. And it troubles me very deeply. It is just another indication, I think, of recalcitrant people, individuals allowing an opportunity to go by. And in the process, whether it be the word of "G-R-E-E-D", or whatever it is, and I just hope that Secretary Skinner and you, and I appreciate your position in the FAA, aggressively move ahead, because I think from a safety point of view, but also to not lose this technology. And I am not inferring this is the case here, but many of the foreign companies take our technology in violation of the patents—after awhile the idea is out and they can pretty much move ahead. Pretty soon, we will be importing these things from Taiwan, and they will be in every airport.

I thank the Chairman for yielding.

THERMAL NEUTRON ANALYSIS PERFORMANCE

Mr. **Lehman**. How are the TNA systems performing? What is the false alarm rate?

[The information follows:]

The TNA systems now being produced were developed through FAA R&D investments over a period of time starting with our first exploratory research in 1977. The performance specification for the system was set to a certain performance level—screening bags in a certain period of time (10 bags per minute) to have high efficiency from an operational standpoint, and to detect a set quantity of explosives with a false alarm rate of a certain percentage. As the quantity of explosives the technology was designed to detect is sensitive information, not appropriate for a public document, we will refer to that as "X" quantity.

At that time the system was designed to detect "X" quantity of explosives, and it is that quantity the system has been calibrated for in operation. Based upon our experience to date at JFK with screenings of over 60,000 passenger bags, we are satisfied that the present technology and the machine that we have in place are performing in accordance with the specification the machine was designated for. We have experimented with the system and tested it at significantly smaller quantities of explosive materials than the specified "X" amount, and although we can obtain similar detection rates, we do incur a higher false alarm rate.

In summary, the TNA system is the first explosives detection system to meet the FAA's acceptance test requirements for detection rate, false alarm rate, and ease of use. It is capable of detecting all known commercial explosives, including plastic explosives which would not otherwise be detected with current state-of-the-art x-ray detection systems alone.

Mr. LEHMAN. Based on your experience to date, what is your assessment of the total number of systems that will be required?

[The information follows:]

The FAA's current discussions center around an initial deployment of an estimated 159 systems at, roughly, 40 airports. Consideration of further explosives detection systems deployment could be undertaken only after extensive analysis of the level of inter-governmental cooperation received for the first group of machines, the environments in which any additional systems would or could be used, and the benefits to the carriers and the public of requiring such systems. The FAA has not rendered a final decision about what airports and under what timeframes explosive detection systems would be required.

The Office of Civil Aviation Security has been actively coordinating its activities in this regard with the affected air carriers. The FAA will continue full communications and coordination with the carriers before and during the implementation of any such program.

Mr. LEHMAN. There was a dispute about radiation liability insurance that delayed the installation of a TNA device at Miami International Airport. Do you expect to be confronted with this problem elsewhere?

Admiral BUSEY. No, sir. I am very hopeful and I am confident that these problems are behind us now. These devices are certified by the Nuclear Regulatory Commission, licensed thereby. The insurance issues are settled. I think we have been through the tough hurdles that have frustrated us so much over the past year.

Monte, do you agree with that?

Mr. BELGER. I would agree with that. We are still going to face some of these insurance questions at locations. We are breaking new ground here with new technology, and we have got to overcome the concerns that people have about the long-term radiation hazards of these machines. And we have successfully done that in the locations where we have put the machines.

FINANCING SECURITY DEVICES

Mr. LEHMAN. Under your rule the airlines purchase of these systems would be financed by a surcharge on tickets. What is the status?

Admiral BUSEY. The status is that is still our policy, Mr. Chairman. We expect the airlines to fund all of these security devices, simply because they can add the surcharge onto the ticket tax and collect the money and pay the bill.

Mr. LEHMAN. Where are we now? Are any of the airlines beginning to charge this surcharge?

Admiral BUSEY. No, they are not because although we have a final rule out, we still have not issued the special security instructions to the airlines that will specifically require them to acquire devices in accordance with the phase plan: To have 50 devices in place at 40 airports within one year. We are very close, a matter of weeks, to issuing those instructions. The clock will start running and the demands will then be made on the producers.

Mr. **Lehman**. Will you have the surcharge in time to afford the airlines the resources to buy these?

Admiral **Busey**. We do not believe that the airlines will have any difficulty with procuring the devices and then putting the surcharges in place. They do that regularly for the other security devices. So, we do not think it is a funding problem as long as we adhere to our policy of requiring the airlines to buy this equipment.

If we, the Government, have to go into the procurement process and adhere to the Federal acquisition regulations and start these buys going, there is going to be a longer delay because we simply cannot go to contract and move as fast as private industry can.

Mr. **Lehman**. That is right. But it took quite a while to get this new rule into effect for the airlines to get moving on this. Did it not take an undue amount of time to do this?

Admiral **Busey**. It has taken us a long time to do it and, as you know, Mr. Chairman, there is still a lot of opposition to what we intend to do. The Presidential Commission, as a matter of fact, that is investigating Pan AM 103 has indicated to us that we think that our procedure to move forward with getting this technology in place is the wrong decision. So, there is still a lot of opposition to us moving. And that has caused us, naturally, to proceed with a lot of caution as we go forward in this process.

AIRPORT ACCESS REGULATION

Mr. **Lehman**. How are you doing with the implementation of your regulation on the security systems to limit the access of airport workers to aircraft and baggage?

Mr. **Belger**. We are making good progress there, I think, Mr. Chairman. We have approved 16 programs out of the 17 major airports (category X) in the United States. And we have approved 46 other airport programs. I think we are showing that the standards can be met and that we can approve programs for access controls.

CONTROLLER STAFFING

Mr. **Lehman**. Since the air traffic controller strike in August of 1981, your agency has made significant progress in rebuilding the controller work force. However, you consistently have failed to meet the full performance level targets established by the Congress as well as by your own agency. What is your assessment of the present air traffic controller staffing and are you satisfied with the amount of overtime that is required and the number of operational errors?

Admiral **Busey**. My quick answer to that, Mr. Chairman, since the last nine months, I have traveled around the system, visited the vast majority of our centers and countless towers and TRACONs. My quick assessment is the agency has done a fine job of rebuilding the controller work force since 1981.

I will turn it over to Mr. Pollard to deal with the specifics.

Mr. **Pollard**. Yes, sir, Mr. Chairman. I think we are in good shape. At the end of March, we had 17,209 in the controller work force. But more importantly, over 89 percent of those or 15,300 were operational controllers. That is, controllers that are productive, checked out on at least two positions.

As it relates to the overtime, our overtime was reduced by 25 percent from fiscal year 1988 to fiscal year 1989. We supplement our work force with about 1.5 percent overtime. In other words, about 266 work years of overtime in each year that actually is in addition to our on-board staffing. That amount of overtime is probably a little below a desirable level. Our effort now should be directed towards utilizing that overtime at more facilities. Ninety percent of overtime utilized is probably utilized at 10 to 12 percent of our facilities.

Admiral BUSEY. The overtime being down, Mr. Chairman, tends to indicate to me that the gains in controller staffing have really been significant. We have had to reduce overtime because of affordability. I wanted to put money into PCS so we could move other people around. And as Mr. Pollard mentioned, we have got to take a look now at funding that overtime so that we can raise it a little and thereby provide that overtime for training and bringing on more FPLs a little bit faster.

OPERATIONAL ERROR RATE

Mr. LEHMAN. What about your operational error rate?

Mr. POLLARD. If I could just add one other thing about the overtime? The overtime has a direct impact on our training. So, perhaps, if we had the funding as the Administrator said, we could be utilizing more overtime so that we can do more training.

The Operational error rate is down. It has been down each year since 1984 and was down 14 percent from 1988 to 1989.

CONTROLLER TRAINING

Mr. LEHMAN. I am really a little bit confused. I am not sure I understand the correlation between overtime and training. Do you have to have overtime to provide the training you need?

Mr. POLLARD. Overtime supplements the training. A good example: If I am a developmental controller and work a position, for someone to train me on another position, the person training me is no longer productive. I take that individual away from an operating position. Consequently, that position may have to be operated by someone that would be working on overtime.

Mr. LEHMAN. It is indirectly related.

Mr. POLLARD. That is correct.

Mr. LEHMAN. But you could do it if you had the personnel without overtime. You would just have other people come in on their own regular time.

Mr. POLLARD. That is correct. Overtime is more cost-effective in this training situation.

Mr. LEHMAN. The training does not mandate overtime, it is just more convenient that way in most cases.

Mr. POLLARD. Right, sir. The way we train now is that it does require overtime because of the staffing.

CONTROLLER MORALE

Mr. LEHMAN. According to a GAO survey published last November, controllers are troubled by the working conditions at your air traffic control facilities. For example, at the worst rated facility, San Francisco, 81 percent viewed their morale as low or very low. Have you looked at those facilities where the morale is relatively low to determine what is causing this problem? If so, what have you found and what actions have you taken to address these concerns?

Mr. POLLARD. As you know, there was a congressional hearing on the GAO controller attitude survey and subsequent to that hearing, we had the GAO officials meet with our center and Level 5 managers and our air traffic division managers and give them a briefing on their findings.

The ranking of the 84 facilities came out some months subsequent to that. Specifically, as it relates to San Francisco, our facilities are very competitive. I think they saw a facility just across the Bay, Oakland Tower, get upgraded so that they were at the same level as the San Francisco Tower. They saw the Los Angeles Tower get upgraded a grade above their work force. And that, combined with the cost of living, and in some cases, housing, and a long commute—this just impacted the morale.

We have concentrated on the staffing now. The San Francisco Tower is authorized 32 controllers and they have 32 on board.

Mr. COUGHLIN. Mr. Chairman?

Mr. LEHMAN. Mr. Coughlin.

Mr. COUGHLIN. I used to be an aide de camp to a Marine Corps general named Chester D. Puller, and he taught me a very strong lesson that your first concern was always for your troops: their health, their welfare and their safety. And I know that the Admiral, coming from a military background, feels the same. FAA, this goes back a number of years, did not have the greatest reputation for its care for its troops. And your controllers are your troops.

Admiral BUSEY. That is correct.

CONTROLLER EQUIPMENT

Mr. COUGHLIN. And I hope that the concern is being paid. On the radio this morning I heard that some of your controllers were sitting on trash cans because of the lack of chairs for them to sit in. I would hope that that would not be a regular occurrence and that we are providing at least comfortable chairs for the controllers to sit in. That goes to being concerned about the health, welfare and safety of your troops. Could you comment on that radio report?

Admiral BUSEY. Yes, sir. I would be glad to comment on that, because that was my issue of the day yesterday afternoon when I left the hearings. As we pulled the string on that, it was not controllers working live traffic, plugged into the communications system on line, that were sitting on trash cans and boxes. We have had some chair problems. Several years ago, we bought 10,000 specially built chairs for the controllers to use. These chairs get a lot of hard use—24 hours a day. They are adjustable. We have individual preferences involved. We have a lot of breakage. Because they were custom-made, we have spare parts support problems. I could go on and on with the details. But the bottom line is that in the facility that you heard about on the radio, there are 30 new chairs being provided by noon today to solve that immediate problem, so that there will be no one sitting on trash cans or wooden boxes. And I believe we have the internal procedures in place to solve the chair problem.

Your point is taking care of the troops. And as Bill had indicated, and as I indicated yesterday, one of my primary goals as Administrator is people. Taking care of the people we have, insuring they have the training. Doing our best to make sure that they get a fair wage, that their working hours and their working conditions are accommodating. I want them to be happy. I want them to enjoy working with the FAA, because that is the way we are going to keep them.

We have got a lot of steps in place to improve our communications. I am instituting total quality management within the FAA. It is going to be a many-year process to do that, but the key thing involved with total quality management is recognizing the contributions of the individuals, getting the right people with the right skills, gifts and talents in the right places. So, we have got a lot of procedures underway that address the issue of taking care of our troops.

CONTROLLER MORALE

Mr. COUGHLIN. I appreciate that and I guess I think that has got to be—when everyone in management in the FAA wakes up everyday—the first initial thing should be the health, welfare, and safety of the troops. They are awful important to us.

Mr. POLLARD. I would like to just add a couple of things to that. I, personally, believe that our controllers and our field employees have more input to the direction that the air traffic program is going now than they have ever had. We have requirement teams that are helping us design the systems of the future. We have representation from our supervisory work force in both the Federal Managers Association and SUPCOM. And we are just in the exploratory stages of working with the Union on a more defined employee involvement program.

Mr. COUGHLIN. Thank you, Mr. Chairman.

Mr. LEHMAN. I just wanted to say my opinion is that it is not the cost of living, it is not the travel distance to work, it is not the Chair, so much as the SOB in charge. [Laughter.]

I have found out that in the school system, if the principal has management skills, or if you run an automobile dealership and the manager has skills, then you have a reasonably good morale. If he does not have the management skills, if he shows favoritism, detachment or whatever, then you have a problem regardless of what else happens. So, I think you have to look, first, at who is in charge.

Admiral BUSEY. Yes, sir.

CONTROLLER EMPLOYMENT LEVELS

Mr. LEHMAN. In January, you notified us that you will not meet the statutory end-of-year employment levels for air traffic controllers and FPL controllers established by the fiscal year 1990 Appropriations Act. How were your revised levels, which are 495 controllers and nearly 2000 FPLs below your original estimate, determined?

Admiral BUSEY. That was a management decision, Mr. Chairman, that I took shortly after the new fiscal year began. We were hit by the sequestration process. I simply did not have the dollars available to me in my operational account to pay the salaries necessary to keep our hiring going. I elected, instead, to devote those dollars to PCS funds so that I could get the people moving and get the people with the right talents that we needed into the pay demo areas and into other areas where we needed to have the progression. Part of that decision was driven by money.

Also, we had some slippages in our new programs coming down the pike—a delay in the common consoles for the Interim Sector Suite Systems—which gave me a little more flexibility to make that decision since we could delay hiring the additional controllers for another year. So, it was purely a management decision. And it was an affordability issue.

MANAGEMENT DECISION MAKING

Mr. LEHMAN. Talking about the person in charge, again. I am sure the Navy during your time there could tell the difference between which officer ran which kind of a ship.

Admiral BUSEY. Yes, sir.

Mr. LEHMAN. It was a lot of difference just depending on who was running it.

Admiral BUSEY. Very definitely.

Mr. LEHMAN. And what is amazing to me is when I was in the school system, the morale among the faculty at different high schools varied quite a bit. Some principals were almost invisible and some were out there in the halls all the time. The styles did not matter. It was the person that mattered.

Admiral BUSEY. Yes, sir. And we cannot assume, in my experience, we cannot automatically assume that everybody we put in a supervising position has all the skills and talents that he needs to lead people. We have got to provide them that training so that they can develop those skills.

Mr. LEHMAN. It is the old "Peter Principle". You promote them up to the point where they cannot function.

Admiral BUSEY. Yes, sir.

Mr. LEHMAN. A good controller may make a bad manager.

Admiral BUSEY. Yes.

REVISED CONTROLLER STAFFING STANDARDS

Mr. LEHMAN. Where do you stand regarding the development and implementation of your revised staffing standards, and based on these standards, how many controllers should you have in your centers and in your towers?

Mr. POLLARD. We have established standards for the center, and for the TRACON. We are working on established standards for the tower. We expect to have those completed by the end of this calendar year. Utilizing those staffing standards that we have, our controller work force should be approximately 17,200. And, obviously, as we said, our goal is a little less than that, but what is not taken into account in the staffing standard is currently today we still have 1,300 air traffic assistants supplementing the work force. We are also working on standards for the automated flight service station.

CONTROLLER WORK FORCE

Mr. LEHMAN. Please provide for the record a table showing controller work force end-of-year employment for fiscal years 1987 through 1991 as was included on page 34 of last year's Committee report.

[The information follows:]

Attached is the updated table entitled "CONTROLLER WORK FORCE (END OF YEAR EMPLOYMENT)."

The table has been revised to reflect changes due to the redefinition of Controller Work Force, which took effect October 1, 1987 (FY-88). The end-of-year employment data for FY 1987 has previously been stated for the record.

CONTROLLER WORK FORCE

(End of Year Employment)

	FISCAL YEAR 1988	FISCAL YEAR 1989	FISCAL YEAR 1990 (Estimate)	FISCAL YEAR 1991 (Estimate)
CENTERS:				
FPL Controllers	4,254	4,384	5,783	6,076
Other Controllers	1,429	1,342	*	*
First line Supervisors	739	788	796	829
TOTAL OPERATIONAL CONTROLLERS	6,422	6,514	6,579	6,905
Developmental Pipeline (GS-9)	1,023	1,112	1,123	1,133
CENTER CONTROLLER WORK FORCE	7,445	7,626	7,702	8,038
TOWERS:				
FPL Controllers	5,604	5,848	7,205	7,284
Other Controllers	1,165	1,286	*	*
First line Supervisors	1,260	1,368	1,382	1,416
TOTAL OPERATIONAL CONTROLLERS	8,029	8,502	8,587	8,700
Developmental Pipeline (GS-9)	962	704	711	757
TOWER CONTROLLER WORK FORCE	8,991	9,206	9,298	9,457
CENTERS/TOWERS COMBINED:				
FPL Controllers	9,858	10,232	12,988	13,360
Other Controllers	2,594	2,628	*	*
First-line Supervisors	1,999	2,156	2,178	2,245
TOTAL OPERATIONAL CONTROLLERS	14,451	15,016	15,166	15,605
Developmental Pipeline (GS-9)	1,985	1,816	1,834	1,890
TOTAL CONTROLLER WORK FORCE	16,436	16,832	17,000	17,495

NOTE: This chart reflects the redefinition of CWF beginning October 1, 1987 (FY-88). End-of-year employment data for FY 1987 has been previously been stated for the record.

The new definition for CWF includes first-line supervisors and traffic management coordinators, and excludes air traffic assistants (ATA's) and FAA Academy trainees. The category "Other Controllers" includes those controllers at FPL grade but not fully checked out, and a developmental controller who is certified on two or more positions of operation. The term "Developmental pipeline" includes those individuals who have successfully completed FAA Academy initial training and are assigned to their first facility, but not yet certified on at least two positions.

* The estimates for FPL and Other Controllers are combined for FY 1990 and 1991.

Mr. **Lehman**. If you reach your revised FPL goal for fiscal year 1990, you will have added only 1,252 FPLs in four years. Why are you continuing to have such a problem adding to your FPL work force?

Mr. **Pollard**. Well, sir, I would not classify it as a problem. It is certainly a concern. The reason it takes so long to generate an FPL is, if they go to our larger and busier facilities, it takes as much as three years to check out as an FPL. And, as you recall, we testified last year: If we have an FPL in one facility that transfers to a higher level facility, then they lose that FPL status. So, it is not a static number that we are dealing with.

What is important I think is that since 1981, we have produced 7,400 FPLs in the system.

Mr. **Lehman**. What are your respective tower and center FPL goals for fiscal year 1991?

[The information follows:]

The current FY 1990 projection for FPLs in centers and towers is:

Centers	5,980
Towers	4,800
Total	10,780

AIR TRAFFIC GROWTH

Mr. **Lehman**. In your January letter, you state that actual aviation traffic growth has been less than the initial forecast. However, a February 23, 1990, news article states that January traffic was up 7 percent from a year earlier and industry officials are predicting even better results for February. What were the increases in February and March? And what are your projections for the balance of fiscal year 1990 and for fiscal year 1991?

Mr. **McDaniel**. I think the airlines and the Wall Street Journal when they talk about traffic tend to talk about enplanements. When we talk about traffic, we tend to talk about numbers of operations. So there may be differences in the forecasting numbers. For the first quarter, the number of operations in the system were lower than we had forecast.

There has been somewhat of a rebound in January and February. February traffic was up nearly 7 percent, much of it in general aviation, so that for the remainder of fiscal year 1990, we expect our forecasts to be almost what they were when we made them a year ago. That is a growth of about 4 percent. We expect that growth to continue into 1991.

Mr. **Lehman**. There are a number of ways to measure.

Mr. **McDaniel**. Exactly.

Mr. **Lehman**. Your most recent report on system delays shows a 4.3 percent increase for January and February compared to 1989. What was the reason for this increase in total delays? Does this indicate that traffic is increasing?

Mr. **McDaniel**. Well, sir, traffic is increasing slightly, however I do not think we should limit an explanation of delays to a direct correlation between the traffic increase and the delays, sir. Our system today is such that at most of the busier airports, the scheduling is predicated basically on VFR weather. So, when we have anything other than VFR weather, then we do encounter delays in the system. Our delays in the system attributable to weather are about 58 percent.

Mr. **LEHMAN**. My own experience recently has been very good. That is anecdotal, but I have had less problems in the last three or four months than I remember.

Mr. **MCDANIEL**. Well, sir, since you mentioned that, I would like to add one other thing for the record. One point one percent of the total operations actually encounter a delay.

Mr. **LEHMAN**. So a 4.3 percent increase of 1.1 percent is not that much of a deal.

Mr. **MCDANIEL**. Well from the numbers it is not, but from a concern it is. Yes, sir.

INITIAL SECTOR SUITE SYSTEMS

Mr. **LEHMAN**. Your letter also refers to a 13-month slippage in the delivery of your initial sector suite systems. Are the additional 145 controllers that had been requested to implement ISSS now included in your fiscal year 1991 budget?

Mr. **MCDANIEL**. Yes, sir, they are.

ISSS IMPLEMENTATION SCHEDULE

Mr. **LEHMAN**. Please provide for the record your current schedule for ISSS implementation, including the impact it will have on your controller staffing requirements for fiscal years 1991, 1992, and 1993.

[The information follows:]

Our preliminary estimate reflects that about 510 additional en route controller workyears, based on 5 additional workyears per area of specialization per facility, will be required during transition to the Initial Sector-Suite System (ISSS). This additional staffing would perform backup controller duties for those controllers receiving ISSS training, and therefore the additional staff must be brought on board at least two full years before the ISSS training starts in order that they achieve operational status. We are currently studying to what extent this additional workload requirement can be met through contract services, use of overtime, or rehired annuitants.

The original staffing plan was to bring the additional staff on board over a three year period beginning in fiscal year 1990, with the bulk of the increase in the first two years (fiscal years 1990 and 1991). The Administrator's January 26, 1990 letter advised the Subcommittee that the need for this additional staffing will move out one year because of a 13-month slippage in the ISSS schedule. However FAA now expects that the slippage will be extended up to 19 months. The following data reflects the latest field ARTCC ISSS implementation schedule and staffing requirements.

INITIAL SECTOR SUITE SYSTEM (ISSS) IMPLEMENTATION SCHEDULE

Facility	Delivery	Training starts	Operational readiness demonstration
Seattle	2/94	11/93	8/95
Atlanta	4/94	1/94	10/95
Chicago	6/94	3/94	12/95
Ft. Worth	7/94	4/94	1/96
Cleveland	8/94	5/94	2/96
Houston	9/94	6/94	3/96
Denver	10/94	7/94	4/96
Washington	11/94	8/94	5/96
Salt Lake City	12/94	9/94	6/96

INITIAL SECTOR SUITE SYSTEM (ISSS) IMPLEMENTATION SCHEDULE—Continued

Facility	Delivery	Training starts	Operational readiness demonstration
New York	1/95	10/94	7/96
Kansas City	2/95	11/94	8/96
Minneapolis	3/95	12/94	9/96
Albuquerque	4/95	1/95	10/96
Oakland	5/95	2/95	11/96
Memphis	6/95	3/95	12/96
Los Angeles	7/95	4/95	1/97
Miami	8/95	5/95	2/97
Indianapolis	9/95	6/95	3/97
Jacksonville	10/95	7/95	4/97
Boston	11/95	8/95	5/97

Note: Training is assumed to begin with availability of common consoles for detached console training, which is planned to occur 3 months prior to delivery of rest of ISSS system.

STAFFING SHORTAGES

Mr. LEHMAN. Your letter refers to the need to correct staffing imbalances among your facilities. According to your staffing standard, which facilities and centers have the most serious shortages?

[The information follows:]

Shortages exist in the 9 pay demo air traffic facilities. In addition, shortages exist in other facilities, such as Boston Tower and Center, Indanapolis Center, New York area Towers (Kennedy, Newark, La Guardia), Los Angeles Basin facilities, Oakland Center.

STAFF RELOCATIONS

Mr. LEHMAN. From which facilities are you moving personnel, and what impact will that have on their staffing situation?

[The information follows:]

Through the first half of FY 1990, Air Traffic had completed a total of 651 moves. This included the movement of 167 personnel from FSS facilities to AFSS facilities in recent FSS consolidation efforts. In addition, there has been 51 moves from the center option, 372 from the terminals and 61 from regional and Washington headquarters. The majority of our PCS program has been consumed by supporting understaffed facilities in the terminal option. Approximately 57 percent of total funding has been utilized in supporting terminal vacancies as the number of facilities supported in this option represents the largest segment in the Air Traffic program.

The movement of personnel from one facility to another is controlled to alleviate levying severe hardships on the operation and staffing requirements of the losing facility.

Mr. LEHMAN. Please elaborate on your answer for the record showing how the facilities to which you are moving personnel and those from which you are moving personnel compare with your staffing standard.

[The information follows:]

A goal in FY 1990 has been to realign the existing CWF workforce in accordance with approved agency staffing standards. With minimal resources currently available in this crucial program, AT has made the most efficient use of existing resources in ensuring that staffing imbalances are corrected and critical vacancies are filled. As of March 30, 1990, 50 percent of existing PCS funding has been expended on filling CWF vacancies in the Level III, IV and V terminals. Typically, the majority of the staffing imbalances occur in these facilities. Efforts are ongoing to continue moving personnel to avoid over staffing at some facilities while others are short.

CONTROLLER CHANGE OF STATION MOVES

Mr. LEHMAN. If, as you indicated in your January letter, you need additional funds for controller change of station moves, why are you proposing to reprogram $1.77 million out of air traffic activity?

Mr. STOER. Mr. Chairman, that is actually a small technical adjustment. It is a cost of local communications within the air traffic account that was simply shifted over to a different part of the budget.

FY 1991 CONTROLLER STAFFING REQUEST

Mr. LEHMAN. For fiscal year 1991, you are requesting an increase of 495 controllers. How was this determined?

Mr. POLLARD. It was determined, sir, that we needed 336 for our en route facilities plus some additional positions for growth and 159 for our terminal facilities.

Mr. LEHMAN. Several years after the strike, you have significantly reduced the number of newly hired controllers. However, this action was followed by a growth in air traffic and significant increases in system delays. How confident are you that your current proposals for 1990 and 1991 will not force you play "catch up" in a year or two?

Mr. POLLARD. I am very confident. Because of the training required, we are actually looking ahead to 1992, 1993, 1994 in order to have the right amount of people on board. What we are trying to do is look ahead several years and establish an even flow hiring and training program at our Aeronautical Center. However, we could get impacted by the continuing resolution, Gramm-Rudman, and those types of activities that are unexpected sometimes.

PAY DEMONSTRATION

Mr. LEHMAN. Ten months ago, you implemented a program that provides a 20 percent pay increase to certain employees at 11 facilities. What has happened at these facilities, and to what extent have your staffing problems been eliminated?

Admiral BUSEY. The quick answer to that, Mr. Chairman, is the pay demonstration project has not been in effect for a full year yet. It is really too early to have any specific indicators to relate to you. I think we have some trends. Herb, would you like to address those?

Mr. MCLURE. Yes. We have had more employees transfer into those facilities and remain in the last year than we had previously to that. But I do not want to begin to tell you that that is going to be the way it stays based on less than a year's experience. And that is why we are saying it is really too early to tell what the long term effect will have. But I think Bill and others are pleased with what it has done for those facilities that are included.

Mr. LEHMAN. How many employees have received pay increases and, of those, how many were personnel that were already assigned to that facility, and how many came from other facilities? Some of these numbers you may have to give us for the record.

Mr. MCLURE. Actually, I have those numbers. We have everything about the people that have come and gone out of those facilities, right down to their blood type. There were 2201 people in the project. Of those, 1931 were on board when we started, and there are 270 who have moved into the facilities.

Mr. LEHMAN. It has been more of a stabilizing than bringing people in.

Mr. MCLURE. Yes. But that was one of our important objectives.

Admiral BUSEY. Retraining people that would have retired—had indicated that they were going to retire, but have stayed on——

Mr. LEHMAN. For the extra——

Admiral BUSEY [continuing]. For the extra pay.

Mr. LEHMAN. For the record, how many of these 1931 that stayed on were eligible for retirement.

[The information follows:]

At the time the project was implemented, 330 employees were eligible to retire: 239 air traffic controllers, 18 aviation safety inspectors, and 73 airway facilities employees. Since the project began, 41 additional employees have become eligible for retirement: 25 controllers, 3 safety inspectors, and 13 airway facilities employees. Of the 371 total employees who have been eligible to retire, 38 have actually retired: 17 controllers, 2 safety inspectors, and 19 airway facilities employees. Of the 371 eligible to retire, 333 have remained on board.

CONTROLLER TRANSFERS

Mr. LEHMAN. Please elaborate on your answer for the record, showing the facilities from which personnel transferred and the number that transferred from each.

[The information follows:]

New York Center:	
Eastern Region Air Traffic Division	3
Houston Center	1
Indianapolis Center	2
Islip (NY) Automated Flight Service Station	1
Kansas City Center	1
New York TRACON	1
Rochester Tower	1
Raleigh/Durham Tower	1
Salt Lake Center	1
White Plains Tower	1
Total	13
New York TRACON:	
Albany Tower	1
Bakersfield (CA) Tower	1
Danbury (CT) Tower	2
Farmingdale (NY) Tower	2
JFK Tower	2
LaGuardia Tower	3
Long Island (Islip, NY) Tower	2
Total	13
Chicago Center:	
Albuquerque Center	1
Boston Center	1
Chicago O'Hare TRACON	1
FAA Academy	1
Great Lakes Region Air Traffic Division	1
Kansas City Center	1
Los Angeles Center	1
Total	7
O'Hare Tower:	
Albuquerque Tower	1

Detroit Metro Tower	1
DuPage (IL) Tower	1
Grand Rapids (MI) Tower	1
Oakland Center	1
Midway Tower	1
Salt Lake City Tower	2
Total	8

STAFFING LEVELS

Mr. LEHMAN. Please also provide a comparison of the current controller staffing levels with those existing before the pay demonstration projects started for each facility participating in the project and those from which the largest numbers have transferred.

[The information follows:]

For the facilities covered by the demonstration project, the total number of controllers and the number of employees at the full performance level (FPL) are:

Facility	Staffing Level as of March 1990	Staffing Level as of June 1989
New York Center	403 (172 FPLs)	368 (171 FPLs)
New York TRACON	224 (102 FPLs)	226 (80 FPLs)
Chicago Center	540 (190 FPLs)	532 (170 FPLs)
Chicago O'Hare Tower	55 (32 FPLs)	59 (30 FPLs)
Chicago O'Hare TRACON	105 (34 FPLs)	94 (39 FPLs)
Bay TRACON	102 (47 FPLs)	96 (41 FPLs)
Coast TRACON	90 (38 FPLs)	80 (24 FPLs)
Los Angeles Tower	46 (25 FPLs)	40 (27 FPLs)
Los Angeles TRACON	72 (25 FPLs)	73 (22 FPLs)

For the facilities from which the largest number of controllers have transferred, total controllers and FPLs are:

Towers	Number transferred	Staffing Level as of March 1990	Staffing Level as of June 1989
LaGuardia Tower	3	34 (11 FPLs)	34 (13 FPLs)
Bakersfield (CA) Tower	2	22 (9 FPLs)	19 (10 FPLs)
Danbury (CT) Tower	2	9 (6 FPLs)	9 (8 FPLs)
Des Moines Tower	2	39 (21 FPLs)	38 (20 FPLs)
Dupage (IL) Tower	2	18 (10 FPLs)	18 (7 FPLs)
Farmingdale (NY) Tower	2	14 (7 FPLs)	16 (9 FPLs)
Islip (NY) Tower	2	19 (8 FPLs)	17 (10 FPLs)
JFK Tower	2	36 (13 FPLs)	36 (14 FPLs)
Las Vegas TRACON	2	53 (26 FPLs)	53 (24 FPLs)
Moline (IL) Tower	2	24 (14 FPLs)	22 (12 FPLs)
Rochester (NY) Tower	2	29 (16 FPLs)	31 (18 FPLs)
Salt Lake City Tower	2	41 (19 FPLs)	44 (20 FPLs)
Santa Ana (CA) Tower	2	31 (20 FPLs)	31 (19 FPLs)
Waterloo (IA) Tower	2	21 (11 FPLs)	23 (13 FPLs)

Centers	Number transferred	Staffing Level as of March 1990	Staffing Level as of June 1989
Oakland Center	6	338 (174 FPLs)	343 (164 FPLs)
Los Angeles Center	5	389 (179 FPLs)	372 (178 FPLs)
Indianapolis Center	4	401 (198 FPLs)	387 (184 FPLs)
Kansas City Center	3	452 (226 FPLs)	442 (229 FPLs)
Boston Center	2	399 (162 FPLs)	356 (159 FPLs)
Houston Center	2	406 (219 FPLs)	397 (223 FPLs)
Salt Lake Center	2	256 (133 FPLs)	243 (131 FPLs)

INDIANAPOLIS CENTER

Mr. **Lehman**. Last year, I expressed concern about the impact this program would have on non-participating facilities. In fact, the following discussion occurred—this is my statement. "If some FPL controllers decide they want to move from Indianapolis to Chicago and two years from now you have a shortage in Indianapolis, will you propose a 20 percent pay increase for that center? A lot of things can happen in different places in five years."

And then the response was from Mr. McLure, "That's true. The project can be adapted, but we really don't expect that's going to happen. We don't expect we'll adapt the project if it does. Actually, if that kind of thing happens, then it will suggest to me that we need a different kind of solution."

We have recently received information from a coalition of controllers proposing that Indianapolis be included in your program. What is your current controller staffing situation at the Indianapolis center?

Mr. **Pollard**. Indianapolis center has an authorized controller work force of 370, and they have 369 on board, of which 194 are full performance level controllers. However 331 are operational controllers.

Admiral **Busey**. I, too, have had that correspondence, Mr. Chairman. And we have a lot of other en route facilities that have not been included in the pay demonstration project that are reacting exactly the same way. So as we anticipated last year, and as you cautioned, there is a downside to this demonstration project.

Mr. **Lehman**. Well any time you start messing around with pay, you do not know what you will end up with.

Mr. **Wolf**. Could the Chairman yield just for a moment?

Mr. **Lehman**. Mr. Wolf?

OFFICE OF PERSONNEL MANAGEMENT PAY DIFFERENTIAL

Mr. **Wolf**. On the pay question, OPM is now working on a proposal to have differential pay based on regions. As of now, they are talking about coming out with three regions for a pay increase—one, Los Angeles, San Francisco and New York. Have they spoken with you with regard to the Washington, DC, area, which clearly, I think, most people in this area could not afford to buy their house today, as to whether or not Washington should be involved?

Admiral **Busey**. Sir, we have worked closely with OPM and, as a matter of fact, that is why we did not include any specific FAA pay requests in our reauthorization package or in the budget submission because of the Government-wide program that OPM is putting together. So we have worked very carefully with them to make sure they understood all of our concerns. We have commented on the regional pay differential issues for the three areas that you have mentioned.

We need to see it expanded much more than just the three areas. I suspect that there is an affordability issue. We have not seen yet the final results of their package. It is my understanding it will be submitted to the Congress in the next several weeks. But it has got to be my intention that if that package does not address my concerns from the FAA work force, at that time I will have to take a hard look at what we need to do beyond that.

I agree with what you are saying from the Washington metropolitan area, and of course there are other areas in the country where there are significantly high cost of living issues also that need to be addressed.

Mr. WOLF. I thank you. I agree Washington metropolitan area ought to be included. Out of all the FAA employees, how many do you have total?

Admiral BUSEY. Here in the Washington area?

Mr. WOLF. No, total.

Admiral BUSEY. Total? About 51,000.

Mr. WOLF. And how many in the Washington area?

Admiral BUSEY. Three or four thousand in headquarters.

Mr. WOLF. In headquarters and Leesburg facility and the towers?

Admiral BUSEY. If we take into consideration the Leesburg facility and the towers at Washington National and Dulles, the radar facilities, I think we are probably closer to 5,000.

Mr. WOLF. Five thousand. So a large number of your people would be ruled out if the Administration's position does not include the Washington metropolitan area.

Admiral BUSEY. Yes, sir.

Mr. WOLF. I would hope you would convey that strongly to Ms. Horner before it comes up, because that is the issue back and forth now whether or not Washington will be included. There are probably some other areas of the country that ought to be included also, but I want to make sure that this area is.

Admiral BUSEY. Yes, sir.

Mr. WOLF. Thank you very much.

INDIANAPOLIS STAFFING LEVELS

Mr. LEHMAN. Thank you, Mr. Wolf. According to the information we received, Indianapolis staffing levels are below those at New York and Chicago centers and the overtime levels per FPL are higher than at either New York or Chicago. Is this information correct? If so, on what basis did you provide pay increases for Chicago and New York, but not for Indianapolis?

[The information follows:]

The staffing situation at Indianapolis Center and other FAA facilities was carefully considered in the development and implementation of the demonstration project. The demonstration project is designed to test whether the 20 percent allowances paid to employees at the covered facilities will improve our ability to recruit and retain well-qualified employees. It is not intended to correct all of our staffing problems, nor is it necessary or appropriate to include every facility with staffing problems in testing this concept. Not every facility could be included in the project. The major factors considered in determining which facilities the project would cover included the extent of the staffing difficulties experienced by the facilities, the impact of the facilities on the national aviation system, and the various probable causes of the staffing problems. In balancing these considerations, we believe that the facilities selected represent a valid sample of hard-to-staff facilities and will provide the best test for this project. Indianapolis Center does not stand out as being crucial for inclusion in the demonstration project. Although Indianapolis ranks among the busiest centers in the country, its staffing conditions are better than numerous other facilities, particularly those covered by the demonstration project.

Mr. **Lehman**. The correspondence we received includes a notice from the air traffic manager at the center stating that no transfers will be approved until October 1990. Does this situation still exist?

Mr. **Pollard**. Yes, sir, it does. The manager has this direction out because the people you would normally lose to other facilities are the most experienced at the full performance level, and he expects to retain that until October of this year.

PAY DEMONSTRATION COST

Mr. **Lehman**. As you have said and you know, this has an adverse impact on the morale of those not included. Considering that, are you planning to expand the pay demo to other facilities?

Admiral **Busey**. No, sir. I do not intend or plan to expand it to other facilities at this time.

Mr. **Lehman**. Please indicate for the record the number of personnel broken down by activity and facility that receive this extra 20 percent and indicate the total cost for this program for fiscal years 1990 and 1991.

[The information follows:]

Number of employees as of March 10, 1990

Facility:	
Air traffic:	
New York Center	403
New York TRACON	224
Chicago Center	540
Chicago O'Hare Tower	55
Chicago O'Hare TRACON	105
Bay TRACON	102
Coast TRACON	90
Los Angeles Tower	46
Los Angeles TRACON	72
Total	1,637
Airway facilities:	
New York Center Sector	91
New York TRACON Sector Field Office	55
Chicago Center Sector	86
Chicago Sector	85
Bay TRACON Sector Field Office	24
Coast TRACON Sector Field Office	11
Los Angeles Sector	60
Total	412
Flight standards:	
Farmingdale Flight Standards District Office	22
New York Flight Standards District Office	5
New York Manufacturing Inspection District Office	48
Teterboro Flight Standards District Office	35
Teterboro Manufacturing Inspection District Office	3
Los Angeles Flight Standards District Office	39
Total	152
Total for all facilities:	2,202
Total estimated cost for fiscal year 1990 (millions)	20.8
Total estimated cost for fiscal year 1991 (millions)	22.0

IMPACT OF PAY DEMONSTRATION

Mr. **Lehman**. Mr. Coughlin?

Mr. **Coughlin**. Just so we have it for the record, Senator Coats has requested bill language directing the FAA to include the Indianapolis center in their project. Do you suggest we do that?

Admiral **Busey**. I would prefer not to, sir. As the new Administrator, my personal belief is that, had I had an opportunity to participate in the decisional process, I would not have been supportive of the pay demonstration project, because the downside impacts on morale, in my judgment, will outweigh the benefits. Now, when the FAA did go through the process of identifying facilities for the pay demo project, it was based on hard-to-fill positions—traditional locations that were historically difficult to fill, because people simply did not want to leave and move into those high cost areas for whatever reason.

Indianapolis was not one of those facilities, and it, like many of our other en route and terminal facilities in other parts of the country, are not in high cost of living areas. They are not in hard-to-fill areas. And therefore, I would have no intention of adding any more demonstration sites on into the project. So I would not welcome any legislation that would direct me to add Indianapolis center. That would add to my problems, rather than solve a problem, for less than 400 people.

Mr. **Coughlin**. There is no need. The demonstration project can go on for up to five years. It does not have to go for five years.

Admiral **Busey**. That is true. But we are in a situation now where if we terminated it, we would end up taking money out of people's pockets, and that has a tremendous downside impact also. So I would much prefer to see pay adjustments for Federal workers, and specifically FAA workers, system-wide that would bring everyone up to a base level of pay and then would adequately identify those areas that are high cost of living so that marginal salary increases can be added on for those people.

Mr. **Coughlin**. Thank you, Mr. Chairman.

CONTROLLER PAY SYSTEM

Mr. **Lehman**. Thank you, Mr. Coughlin. Last year, the department was evaluating the pay system for air traffic controllers. What is the status of this evaluation?

Mr. **McLure**. We have been studying carefully both the pay system for the air traffic control work force, as well as the pay system we use for all of our safety related occupations. And we are ready with what we consider are reasonable proposals, but we have been holding those until we see what the OPM proposals are, at which time we will reconcile the two and give you an update.

Mr. **Lehman**. According to information provided by your agency, you are paying a 5 percent bonus to a large number of controller and maintenance personnel. This bonus payment was implemented about eight years ago to keep personnel on board following the strike. How many personnel are currently receiving the 5 percent, and what is the total annual cost of the 5 percent program?

Mr. **Pollard**. We have 28,895 people receiving the 5 percent, and it costs the FAA approximately $64 million each year.

Mr. **Lehman**. Well, it is a long time after the strike. Is the 20 percent on top of the 5 percent?

Mr. POLLARD. Yes, sir. Employees earn both.

CONTROLLER SALARIES

Mr. LEHMAN. Please provide for the record the monthly salaries, including all bonuses and overtime, of the five highest paid controllers in your New York and Chicago centers.

[The information follows:]

The five highest monthly salaries are as follows:

New York Center	Chicago Center
$8,662.36	$8,667.11
8,661.96	8,535.56
8,627.38	8,524.88
8,605.61	8,513.15
8,602.33	8,504.23

Basis for determination: First quarter salary of 1990 (PP 9001-9006)—(PP 9006 includes pay demonstration payment for first quarter); annualize first quarter salary; determine average monthly salary; New York Center is cost center 2100; Chicago Center is cost center 2130; included are all job series 2152 (Air Traffic Controllers).

FLIGHT PLAN FOR TRAINING PROGRAM

Mr. LEHMAN. Mr. Coughlin?

Mr. COUGHLIN. Thank you, Mr. Chairman. It has been over a year since you began your Flight Plan for Training program to upgrade the recruitment and training safety-related work forces. What is the current status of this program? Are any parts of it behind schedule?

Mr. MCLURE. Yes. Parts of it are behind the original schedule, but the status is we have made great progress. We have completed projects in every part of the plan. When we originally put that plan together, it was very ambitious. And I think what we have learned as we have gone through now into our second year of implementation is that we need to carefully balance our need to do training currently, as well as our need to improve the training we do for the future. And we have been trying to do that. We are reworking the plan presently so that we will have a careful view of our priorities and the funding requirements for the plan currently. And we will then proceed.

Mr. COUGHLIN. As I understand it, this program involves 47 individual projects and is estimated to cost $406 million through 1994. Please provide a listing of these projects for the record, including the estimated cost and schedule for implementation.

[The information follows:]

The attached table reflects the orginal Flight Plan for Training cost and schedule. The agency is currently revising Flight Plan scheduling and cost to reflect currently planned funding. The revision will be completed later this fiscal year.

FLIGHT PLAN FOR TRAINING

PROJECT TABLE

Flight Plan Project	Schedule For Implementation	Estimated Cost
o Establish Office of Training and Higher Education	7/88 - 1/89	$ ---
o Integration and Evaluation of FAA Training System Dev.	10/88 - 9/93	9,374
o Training Managemet Information System	1/89 - 11/91	4,297
o National Recruitment Program	8/88 - 2/90	15,200
o Streamlined Hiring Process	11/88 - 9/89	7,900
o Airway Facilities Occupation Studay	9/88 - 11/91	930
o Symposia for State-of-the-Art Technical Training	8/88 - 1/92	1,089
o Pre-Hire ATC Training	12/89 - 1/92	4,740
o Cooperative Education Program	10/89 - 9/90	8,847
o Training in Universities and Colleges	8/89 - 9/91	1,007
o New Air Traffic Screen	8/88 - 11/92	8,644
o Air Traffic	10/88 - 3/92	12,061
o Flight Standards	8/88 - 12/90	5,250
o Security	12/88 - 7/93	- - -
o Aircraft Certification	1/89 - 12/92	1,004
o Medical	1/89 - 7/93	600
o Airway Facilities	8/89 - 6/93	11,020
o Curriculum to Train Facility Managers, Training	1/89 - 9/94	3,770
o Air Traffic Control Curricula Redesign	9/88 - 2/92	21,515
o Short-term ATC Curriculum Enhancements	11/88 - 4/91	3,978
o Air Traffic Proficiency Training	1/89 - 2/92	367
o Radar Training Centers	1/89 - 9/94	169,441
o Aviation Medicine Curricula	6/88 - 1/92	650
o Aircraft Certification Curricula Redesign	8/88 - 2/92	6,345
o Flight Standards Curricula Redesign	8/88 - 12/91	1,380
o Civil Aviation Security Curricula Redesign	10/88 - 12/92	900
o Implement Training for New-Hires	9/88 - 3/89	2,194
o Airway Facilities Curricula Modernization	8/89 - 6/90	1,140
o Prepare for Implementation of Modernization Study	8/89 - 9/90	107
o Modernize Airway Facilities Curricula	10/90 - 10/93	4,555
o Implement Airway Facilities Proficiency Training	10/89 - 8/92	17,480

FLIGHT PLAN FOR TRAINING

PROJECT TABLE

Flight Plan Project	Schedule for Implementation	Estimated Cost
o State-of-the-Art Equipment and Facilities at FAA Academy	5/88 - 3/95	49,895
o FAA Academy Initiative Implementation Plan	9/88 - 1/89	- - -
o Academy Instructor Incentives	10/88 - 1/90	47
o Instructional Expertise	1/89 - 6/92	2,584
o Quality Assurance and Productivity Improvements	1/89 - 9/92	2,682
o Advanced Training Design, Development, and Delivery	11/88 - 7/94	1,860
o Training Procurement Process Streamlining	1/89 - 1/92	410
o Training Technology Procurement	8/90 - 4/91	20,065
o Strategic Planning Session for FAA Management Development	9/88 - 9/89	250
o Participate in Management Development Consortia	11/88 - 9/89	4
o On-the-Job Development of FAA Managers	11/88 - 9/91	249
o Develop Relationships with Industry and Academic Comm.	11/88 - 9/89	65
o FAA Conference/Training Centers for Managers	11/88 - 1/93	880
o Career Planning Seminars	11/88 - 1/91	102
o Innovative Technologies for the Delivery of CMD Training	12/88 - 11/90	675
o Review CMD Curricula	1/89 - 12/92	713
Total..		$406,263
	Operations.....	$281,616
	F&E...........	124,647
	Total..........	$406,263

PROGRAM PRIORITIES

Mr. COUGHLIN. Have you established priorities for the numerous projects under this program? If so, what are your highest priority projects?

Mr. MCLURE. We have established priorities, and we are presently in the process of actually enumerating the various parts of the plan. Our most important priorities today are to train the new people that we hire to provide quality training then to all the employees that we have, and to keep pace with the growing demands of the NAS plan.

Mr. COUGHLIN. When the previous Administrator talked about this program, he indicated that it would virtually eliminate the trainee washout rate and reduce by one-half the time it takes to train a new controller. According to your budget justification, you are not projecting any reduction in your washout rate for fiscal year 1991. When might we expect to see some incremental improvements resulting from this program?

Mr. MCLURE. I believe that you will start to see some of the improvements within the next year or two, as some of the projects that we have started to implement bear fruit. We do believe the training time will be reduced. It is our fervent hope that we reduce the amount of washout we have, because that is an expensive thing both for us and for the people in the system. We are working with institutions around the country, universities, with our own institutions in FAA to improve the way we go about our training. And I think you will start to see those improvements soon.

SIMULATION FACILITIES

Mr. COUGHLIN. Does a part of this program involve the establishment of four regional controller radar training centers? If so, why do you believe they are needed, how much will they cost, and when do you intend to request funding for them?

Mr. MCLURE. One of our objectives was to get as much of the training of air traffic controllers as we could out of the operational facility into a simulation facility so that we would not disrupt the actual operations on the floor with our training. When we originally put the plan together, we thought some number of centralized simulation facilities would be needed. What we have learned in the last couple of years is that, given the state of the art, we probably can provide that high quality simulation at each of our en route centers. And that is presently what we are planning to do.

Mr. COUGHLIN. Will these centers affect your activity in Oklahoma City?

Mr. MCLURE. At present, there would be very little effect, because the kind of training we are talking about is not presently done in Oklahoma City. In the long run, if we learn how to screen people more efficiently, we can, we believe, in the future use our facility in Oklahoma City in a different way—more efficiently.

Admiral BUSEY. We do not project that it will have an impact on Oklahoma City. That will still be the core centroid of our training.

CONTRACTOR TRAINING

Mr. COUGHLIN. In the past we have expressed concern about the contractor training provided to your data systems and controller personnel. About three years ago, we stated that you had not demonstrated the cost effectiveness of either contract and demonstrated and directed that you submit a plan to phase out these contracts.

Last month, the IG reported that a contractor who was paid $600,000 to train controllers at your O'Hare Airport facility conducted only one course over a nine month period. In fact, the IG report states that your personnel had to train the contract instructors, as well as your own controllers. How did this happen, and why was it allowed to continue for over nine months?

Admiral BUSEY. This happened because of poor management oversight, and it was allowed to continue for the same reason, sir.

Mr. LEHMAN. Mr. Coughlin.

Is there any way you can get the $600,000 back?

Admiral BUSEY. The contract was negotiated through the Small Business Administration. It was a minority type of contract. I have had counsel work with the SBA, and we are advised that it would be fruitless to pursue recompense on this because of the way we ourselves wrote the contract.

Mr. POLLARD. We did submit the report to Congress as you required, and it shows that over a five year period the contract training actually saves us $103 million. I would not want to confuse this effort at O'Hare with the overall effort that we had in contract training in our en route facilities which has been very good.

Admiral BUSEY. It has been very good, and we have of course learned lessons out of the Chicago site. We learned how to tighten up the contracts and how to properly supervise them. And we are not going to make that same mistake again.

Mr. COUGHLIN. While you agreed with some of the IG recommendations, you did not agree to (1) require all contract instructors to have experience in a similar facility, (2) seek recoveries for nonperformance, or (3) limit the number of contract employees authorized at each facility. Why do you disagree with these recommendations, particularly the one regarding recoveries for nonperformance—were you satisfied with the contractor's performance?

[The information follows:]

(1) Certain generic topics in air traffic control can be effectively taught by instructors from different type facilities. The OIG recognized our point in the final report. In addition, we did agree that most instructors should have experience in a similar facility. The OIG agreed that this would satisfy the intent of the recommendation.

(2) After consulting with the Office of Chief Counsel, we would advise the SBA not to seek recoveries. Again, there were no requirements in the contract—milestones, transition plans—for the contractor to follow. We have no legal basis to seek recoveries.

(3) We did agree to limit the number of contract employees in the future should we expand contract training to other facilities.

CHICAGO O'HARE TRAINING CONTRACT

Mr. COUGHLIN. According to the IG, this contract did not (1) include a date for contractor to assume responsibility for the training functions, (2) limit the cost of providing training to contract instructors, (3) limit the number of contractor personnel, or (4) provide for proper review of the contractor's monthly status reports or vouchers. Why was a contract written without such basic features?

Admiral BUSEY. I cannot answer that, other than it was just poor management oversight and poor contract writing procedures.

Mr. COUGHLIN. Have you got some new lawyers doing this now?

[The information follows:]

The contract training program at Chicago O'Hare was implemented by modifying an existing en route facility training contract.

The overall contract was proceeding satisfactorily, so we had no reason to expect that serious long-term problems would occur at Chicago O'Hare.

Admiral BUSEY. We have got some better training provided to our contract personnel, and better training on the part of the attorneys that are advising them and working with them out in our regions. That is where this kind of work was done and will continue to be done. And I think we have the steps in place to strengthen our ability to write these kind of contracts.

Mr. COUGHLIN. What actions were taken regarding the individuals responsible for this contract? Are they still employed by the FAA? If so, in what capacity?

Admiral BUSEY. I cannot answer that. You can imagine, I think, by the tenor of my answers to your previous questions that I was a bit upset by this process. Do any of you know the whereabouts of the individual concerned?

Mr. POLLARD. Yes. There were three players in the contract from air traffic. And none of those individuals are in jobs relating to contract training or training at this time.

Mr. COUGHLIN. Are they still with the FAA?

Mr. POLLARD. Yes, sir. They are still with FAA.

CONTRACTOR TRAINING PERFORMANCE

Mr. COUGHLIN. As I understand it, this contractor, SRSA [Systems, Requirements, and Services Associates, Incorporated), has a multi-year training contract amounting to over $80 million. Have you evaluated this contractor's performance at other facilities, and do you have any plans to phase out this contractor training?

Mr. POLLARD. Yes, sir. The $80 million is four one year contracts at approximately $20 million. We have been using this contractor in some of our en route facilities, and their performance has been very good. We do plan on going competitive with this contract in 1992. We are in the process now of developing statements of work, and we will be completed with that by this year and then go through the advertising process and will ultimately end up with one contractor providing the contract training where we have two now.

Mr. COUGHLIN. This is the same contractor that did the $600,000 loser?

Mr. POLLARD. Yes, sir. That is correct. Same contract, but in a little different environment. Basically what happened is, several years ago when we converted to contract training, the contractor retained a lot of the people in those en route facilities that were doing training before or were actually working there, where at the O'Hare complex, they entered into a recruitment process.

Mr. COUGHLIN. Can you assure us this is not going on at any other facility now?

Admiral BUSEY. To the best of our knowledge, we have taken a look at all of our contract procedures following the IG report at the O'Hare situation. To the best of our knowledge today, we do not have this problem existing at other facilities.

Mr. POLLARD. We have added this to the evaluations that we do at the facilities. And also, the Administrator had our office of appraisal do an independent appraisal outside of air traffic of this training contract.

CONTROLLERS IN CHICAGO

Mr. COUGHLIN. It was called to my attention by counsel that the lack of controllers in Chicago O'Hare was one of the reasons for the pay demo, and here we have the controllers training the trainers. That is not helping——

Mr. POLLARD. As the Administrator said, that is a sin committed and one that we cannot really rectify. But I can assure you it is not happening that way today, sir.

Admiral BUSEY. We do not have controllers in Chicago training trainers that are going to train new controllers.

Mr. LEHMAN. Not anymore.

Mr. COUGHLIN. I would think a contractor with an $80 million contract would be delighted to refund the $600,000 that was misspent on the previous contract.

Admiral BUSEY. That is one of the reasons why we are going to be competing this contract in the future, sir.

MAINTENANCE WORK FORCE

Mr. COUGHLIN. Several years ago, we were told that NAS plan equipment would result in reduced maintenance. For example, in fiscal year 1986, when your field maintenance employment was 8936 FTEs, we were told that you were projecting net (after allowing for workload increases) savings of 1479 personnel by 1990. We were also told these savings did not anticipate any additional contracting out. However, your current field maintenance staff is essentially the same as it was in fiscal year 1986 (8933 FTEs for fiscal year 1990 versus 8936 in fiscal year 1986).

And, as we were told last year, your contract maintenance increased by more than $26 million in just two years and is projected to continue to increase. Why were your estimates of five years ago so erroneous?

Mr. AQUILANO. I think you will acknowledge, and we will acknowledge as well, that the NAS plan has slid forward, although we have realized a great deal of maintenance reductions. Though the installation of equipment such as second generation VORTAC and solid state equipment, we have realized some workload reductions. The second factor is that from 1990 to about 1995, we will have a very high attrition rate. Retirement is expected to be about 30 percent of our work force. I believe it was recognized shortly after 1986 that we needed to increase the maintenance work force.

IMPACT OF NAS PLAN ON STAFFING

Mr. COUGHLIN. In fiscal year 1985, we were told, "We recognize and, in fact, are committed as part of the NAS plan for a long-term decrease in our maintenance staff, that there is a piece of this maintenance strategy in almost all of our NAS plan projects and programs." Obviously, we are seeing increases in both your in-house staff and your contractor maintenance program. Is a decrease in your maintenance staff along with a reduction in contractor maintenance still an agency goal, or will the implementation of the NAS plan require an increase rather than permit a decrease in maintenance costs?

Mr. AQUILANO. I think once the NAS plan is in place, or as it becomes more and more on-line, we will decrease the maintenance work force. And once we recover from this retirement bubble that we know we have through 1990-95, we will see decreases.

Mr. LEHMAN. Mr. Coughlin.

It just puzzles me. One of the purposes of the whole NAS plan was to substitute technology for personnel, or at least prevent any increase in personnel. And now it seems like the more technology we have, the more personnel we need.

Mr. AQUILANO. I think it just becomes complicated, Mr. Chairman, because we have this retirement situation at the same time and that the NAS plan has stretched out somewhat.

Mr. LEHMAN. I just wanted to——

Admiral BUSEY. And again in our AF, the Airways Facility work force, I had the same confusion, Mr. Chairman, when I came on board, until I learned that the technicians that we are hiring today to work and maintain the facilities that the NAS plan is producing and that our follow-on modernization requirements will produce, they are a different type of technician than what we have in the force today. They are trained differently, and it takes us from three to five years to bring these technicians up to the full journeyman work force level.

So it will take us an overlap period to make sure that we have got the people on board to maintain the system for the next 20 years while we recover from this retirement problem. And of course what we are living with now, in my judgment, is the lack of our ability to ask for—to forecast the needs for maintaining the technician work force several years ago. So we are really living with decisions that were taken four or five years ago, because of the long period of time it takes to train these technicians to the full performance or full journeyman level.

Mr. COUGHLIN. I understand you are planning to hire an additional 350 people for the NAS plan this year. Once these projects are implemented, what happens to those people?

Mr. AQUILANO. They will be folded into the systems maintenance work force. They will gain that experience in the installation. They will be trained as well, and they can be absorbed into the systems maintenance work force. We will still have attrition past 1995, and we think that they would take the place of those retirees at that time.

FY 1991 MAINTENANCE STAFF REQUEST

Mr. COUGHLIN. For fiscal year 1991, you are requesting an increase of 415 FTEs for your field maintenance staff. However, according to your budget justifications, even with your proposed increase in your field maintenance staff it will only be at 88 percent of your staffing standard. Do you really need a larger increase? If so, why have you not requested and if not, should you not review your standard?

Mr. AQUILANO. Certainly we need the larger number (415). The reason we have not adjusted the staffing standard is that, as you know, it is based on the average technician's performance. We have a very highly skilled work force right now and we would have about an average work force performance in the 1995 time frame.

CONTRACTOR MAINTENANCE

Mr. COUGHLIN. Are you planning a multi-year field maintenance support contract? If so, how much does your fiscal year 1991 budget include for this purpose, and have you identified the facilities and job specialties in which private sector maintenance will be used? Also, what controls will you have to avoid the problems we have just talked about in your controller training contract?

Mr. AQUILANO. We do have a multi-year contract plan. We do not have funds in the 1991 budget, but we do have the contract planned. We have looked at facilities, and plan to use the contract mostly for the older facilities that are in place. The contract would cover those facilities for which there are people available who are already trained and can maintain those facilities. This way, we free up the new technicians to be trained in the new technology.

Mr. COUGHLIN. Please indicate for the record the total amount contained in your fiscal year 1991 budget for contractor maintenance.

[The information follows:]

The amount contained in the FY 1991 budget for contractor maintenance is $19,330,000.

Mr. COUGHLIN. You seem to be moving more and more toward contractor maintenance. Do you have a long-term strategy for providing system maintenance? If so, what is it?

Mr. AQUILANO. We are looking at each system on a long-term life cycle basis. The maintenance that is required for each one of those systems is judged whether or not it should be done in-house or by contractor.

Admiral BUSEY. If I might add onto that too, Mr. Coughlin. We are buying technology that is specified for extremely high reliability. And on some equipment, we are putting remote maintenance monitoring capabilities on it. So the FAA is really moving from an era where hands-on maintenance and repairs required for all equipment that has been out in the field for the last number of years into a new technology era where we have remote maintenance monitoring and very highly efficient and highly reliable equipment that may only fail once every two or three years.

We have got a lot of lessons to learn. That is why, as Arnie said, that we are looking at each system on a case-by-case basis. If the contractor that is providing the service that we are interested in has a nationwide base, then we are looking very seriously towards contractor maintenance. If we do not have those kind of players out there to provide us contractor support, then we have got to look very seriously at making sure that we have got our own internal capability for the next 20 years to maintain it. So, it is complex issue, and we are taking the process very carefully as we learn lessons.

Mr. COUGHLIN. You might keep the Committee, if you will, advised as to where we are heading on this. One of the concerns that the Committee has had for many years is that you realize the cost savings that were projected to come from the NAS plan.

Admiral BUSEY. Yes, sir.

NATIONAL AIRSPACE SYSTEM PLAN COST SAVINGS

Mr. COUGHLIN. About eight years ago, your agency provided the Committee with a chart projecting the air traffic and airway facilities cost savings that would result from the NAS plan. The chart has a wonderful line going up here showing without the system plan what the cost would be, and a line going down here what the cost would be with the system plan. I guess it is fair to say that, for the most part, these projected savings have not been achieved and your actual airway facilities and air traffic operating costs are currently much closer, if not above, the estimated level without the NAS plan. Is that correct?

Admiral BUSEY. Mr. Pozesky?

Mr. POZESKY. The chart was contained in the original NAS plan back in 1981, and it was an attempt to estimate the 1981 equivalent dollars for those operations. If you take today's budget and deinflate it so that they are 1981 equivalent dollars, you will find that the dollars are about the same. So, in equivalent dollars as contained in the 1981 plan—and the plan did use those terms "1981 equivalent dollars"—we think we are on track with that curve.

Mr. LEHMAN. Excuse me, Mr. Coughlin. In 1981 dollars, where are you exactly in 1991 or 1990?

Mr. POZESKY. The information I have, Mr. Chairman, is that the 1981 levels for the operation cost was about $1.62 billion, and the 1991 budget equivalent is $1.58 billion.

Mr. LEHMAN. In the——

Mr. POZESKY. Constant 1981 dollars. And we will revalidate that for the record.

[The information follows:]

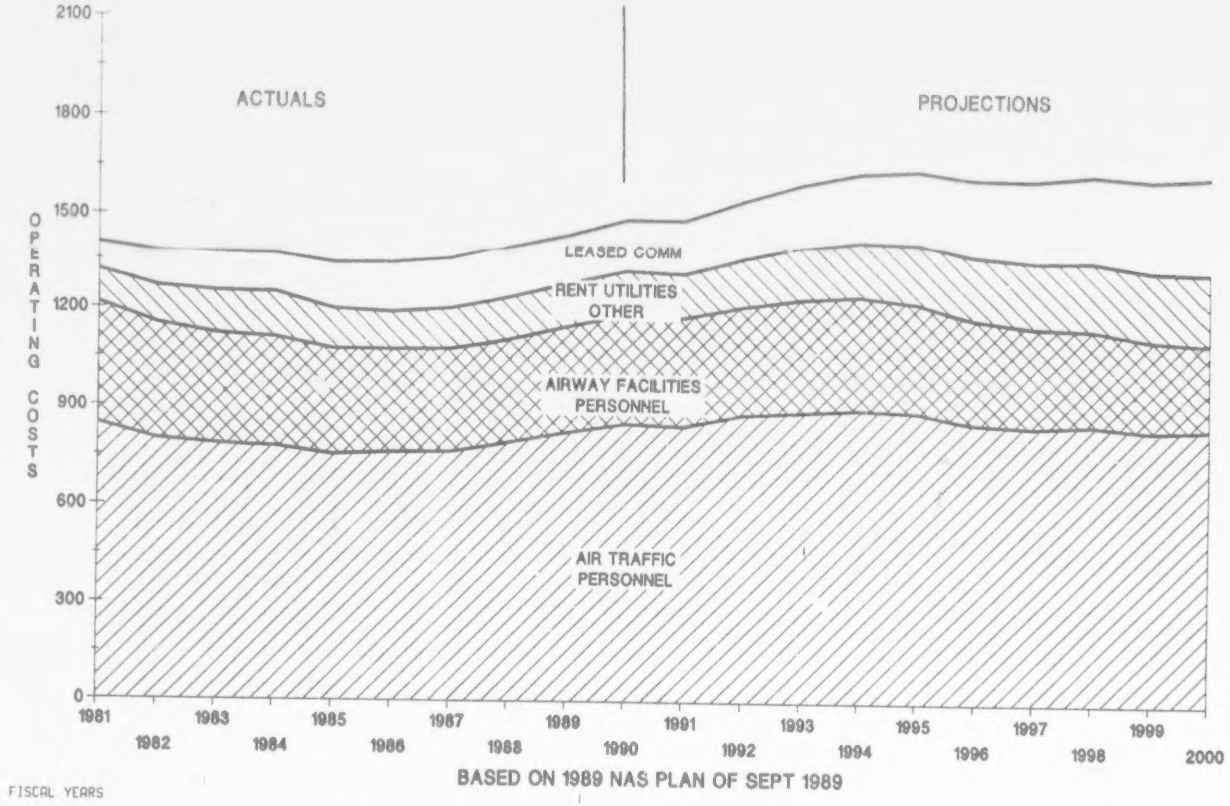
The baseline year level for FAA field operations costs, in 1981 dollars, was $1.62B. The FY 1991 budget request for FAA field operations is equivalent to $1.58B in FY 1981 dollars.

Mr. LEHMAN. Thank you, Mr. Coughlin.

Mr. COUGHLIN. Please provide for the record a chart that adds actual airway facilities and air traffic operating costs for fiscal years 1981 through 1990 and your current estimates for fiscal years 1991 through 2000.

[The information follows:]

NAS PLAN AIRWAY FACILITIES/AIR TRAFFIC OPERATING COSTS
CONSTANT 1981 DOLLARS (MILLIONS)



BASED ON 1989 NAS PLAN OF SEPT 1989

MAJOR ACQUISITIONS

Mr. COUGHLIN. Turning to facilities and equipment. Admiral, the Inspector General has recently declared major acquisition within the FAA to be a major issue requiring management attention. Do you agree? We have discussed this earlier.

Admiral BUSEY. Yes, sir, I do.

Mr. COUGHLIN. You do. That is why I have tried to put in place some of the corrective actions that were embarked on. And we did discuss earlier some of the specific actions you are taking to address that concern. Would you care to go any further on that?

Admiral BUSEY. Well, the realignment—the setting up of the acquisition executive; strengthening the accountability and responsibility of program management; removing layers; providing strong matrix management support to the program managers to enable them to do their job; providing a focus and a discipline and a formal process in our acquisition regime. Those are some of the steps that I have taken. And again, I am in full agreement with the GAO and the Inspector General in this regard.

Mr. COUGHLIN. How do you define a "major acquisition", and do you also have problems with less than major acquisitions?

Admiral BUSEY. Yes, sir. A major acquisition as defined by the Department of Transportation acquisition rules is any procurement in excess of $150 million. That is basically how we in-house are defining a major acquisition. We have some in excess of that. Some of the major programs that we talk about in our F&E account. We have many, many that are smaller acquisitions. And we have similar problems—management and oversight problems—both for the major acquisitions and for the minor ones.

And, as in any organization, the minor problems tend to be the ones that will bite you the quickest, simply because top level management is focusing the majority of their attention on the big dollar programs and tends to ignore the smaller ones. So, it is a constant issue that we have got to work at to make sure that those little ones do not get out of hand.

Mr. COUGHLIN. Will your management changes affect the smaller——

Admiral BUSEY. Yes.

Mr. COUGHLIN [continuing]. Procurements?

Admiral BUSEY. Yes, sir. They do, indeed.

Mr. COUGHLIN. Significant improvements were made in the Navy's acquisition process during the 1980s through the expanded use of competition. Are you a supporter of competition, and do you feel that the FAA's percentage of competitive procurement is high enough?

Admiral BUSEY. I am, indeed, a supporter of competition. I do agree that the Navy and other DOD activities have made a lot of progress by insisting on competition. I am pleased with what I have seen the FAA doing from a competition standpoint based on my relatively short time on board. We have got a good contractor work force. They understand the benefits of competition, and I just do not see any problem in that regard. We will continue that effort.

NONCOMPETITIVE PROCUREMENT

Mr. COUGHLIN. In what types of situations do you feel that a noncompetitive procurement is justified?

Admiral BUSEY. I find in FAA that we have many instances where, in times past, we did not have the foresight to realize that follow-on buys of certain equipment would be necessary. ILS systems is an example. We stopped our procurement of replacement and modernizing ILS systems several years ago because we were concentrating on the MLS. Then when we find ourselves in a situation of terminating the MLS contract, we have a need now for ILS, at numerous new runways. Because the nation only has a limited number of producers of ILS equipment, it is prudent to consider going back to that initial procurer and buying his off-the-shelf system.

So when we need a fast buy, when we have an emergency situation that we have got to fill, it makes sense in those cases to go to a sole source producer. And in other cases, it makes a lot of sense to limit competition. When you know that there are only a certain number of players that can provide a piece of equipment or service that you are interested in, then it is prudent to narrow the players from a competitive standpoint so that you do not waste a lot of time and a lot of dollars getting into a procurement.

Mr. COUGHLIN. About what percentage of your R&D is non-competitive?

Admiral BUSEY. I do not have a figure off the top of my head. Marty, can you——

Mr. POZESKY. I can provide a figure for the record, but generally much more of the R&D is non-competitive.

Mr. COUGHLIN. Can you provide that for the record, please?

Mr. POZESKY. Yes.

[The information follows:]

Of the FAA Headquarters R&D dollars for FY 1987 through April 1990 the average percentage of contract actions that were non-competitive is 10.7 percent and the average percentage of dollars that were non-competitive is 28.1 percent. The contract awards and contract actions awarded to minority business (8(a) firms) are not included in the above data because they are awarded under a separate authority set forth in FAR 6.302-5 Authorized or Required by Statute (41 USC 253(c)(5)).

COMPETITIVE PROCUREMENT

Mr. COUGHLIN. For the record, please provide a chart showing the percentage of FAA procurements which have been made through competitive means for fiscal years 1987, 1988 and 1989, and estimated for fiscal years 1990 and 1991.

[The information follows:]

[In percent]

Fiscal year	Contracts	Dollars
1987	98	99.5
1988	92	93.1
1989	93	88.9

[In percent]

Fiscal year	Contracts	Dollars
1990 [1]	[1] 93	[1] 94.5
1991 [2]	[2] 93	[2] 92.5

[1] Actual percentage as of April 4, 1990.
[2] Estimate.

AREA CONTROL FACILITY CONSOLIDATION

Mr. COUGHLIN. The area control facility consolidation will reduce the number of TRACONs in the United States to 23 facilities. Could you supply the Committee with a consolidation list and timing schedule for those?

Admiral BUSEY. Yes. We will be happy to do that, sir.

[The information follows:]

We will supply this information to the Committee as soon as final decisions are made on this project.

Admiral BUSEY. And as I mentioned yesterday, the ACF—the consolidation into the 23 facilities is a backbone assumption behind the NAS plan. Right now, I am in the process of final review stages of looking at whether that is the prudent way to go or not. As I mentioned yesterday, my feeling is that it is too risky. It makes us too vulnerable to compress the operation into those few facilities. I expect to be in a final decision process in the next several months as to what that number will be. Once I make that decision as to what our consolidation policy will be, then I will be better able and be happy to provide the details for the record.

Mr. COUGHLIN. The concern is that a slip in the schedule could have the same result as the flight service station consolidation problems. And what happens to the consolidation program if the AAS program is delayed?

Admiral BUSEY. Yes.

ADVANCED AUTOMATION SYSTEM

Mr. COUGHLIN. How effective is the Advanced Automation System without the voice switching communications system? What is the status of the voice switching communications system and its delivery date for inclusion in the AAS?

Admiral BUSEY. Well the Advanced Automation System, of course, provides new, modernized tools for the controller work station. VSCS system is intended to be, when it is brought on, an integral part of that to handle the communications switching, both air-to-ground and ground-to-ground. So the modernization of our voice control switching systems is a mandatory part of our modernization and upgrading. We can no longer rely on the antiquated switching systems that we have out there right now.

As I am sure you and the subcommittee Members are aware, you cautioned us, based on the GAO recommendations, not to proceed too rapidly with letting the VSCS contract—settling the competition until we were sure that we had adequately tested the system. We have delayed awarding the contract or making a selection of the competitors until I am satisfied that all of the testing has been done. This is the first program in my mind that I have really got total control over, and I am ensuring that we do adequate testing up front before we go to the final throes of competition. I expect that we will be ready for that in another two, perhaps three, months.

But because of the slip in the AAS contract which we will talk about a little more later, I do not see that we have got any problem with the VSCS contract. It should still be ready ahead of the AAS system and ready to be integrated into that system when it is delivered.

AUTOMATED FLIGHT SERVICE STATIONS

Mr. COUGHLIN. How would you evaluate the AFSS modernization program since there will be no model two upgrading of the FSS system? Do we need to reevaluate whether 61 systems is enough?

Mr. POZESKY. Let me just say that one of the problems we had with the AFSS program was getting the technology on-line. There has been a lot of foraying in history on that issue. I am happy to report that the first delivery of the second phase of that program—the kind of technology we need to restart our consolidation program—has been delivered to the Kansas City center. We will be shaking it down. From a technical viewpoint, will have the kind of technology we need to restart the consolidation program very, very quickly. Mr. Pollard may want to talk about the consolidation options itself.

Mr. POLLARD. We have 46 automated FSSs that are on line, and we have consolidated or relocated some 175 facilities. The real payoff and benefit to that will be once we are totally consolidated. We are still providing services at those locations where we have closed flight service stations. We are providing weather services.

DIRECTOR OF ACQUISITION

Mr. COUGHLIN. Admiral, your recent reorganization created the position of Executive Director of Acquisition. In the acquisition community, they are calling him the "acquisition czar." As we understand it, this office is expected to review and approve major acquisitions and enforce acquisition policy. However, on the organizational chart, the czar seems equal to the other executive directors, but with far less staff. How are you ensuring that his office has the authority and resources to do its job?

Admiral BUSEY. He has the authority and the resources because he reports directly to me and keeps me directly informed. I wanted his staff to be lean and mean. I did not want it to become a heavily bureaucratized administrative processing organization. I wanted it lean and mean so they could get out into the other divisions, work with the other executive directors in a hands-on way. But his control, his oversight basically flows directly from me. And I think that is most adequate.

Mr. COUGHLIN. That is pretty good authority.

Mr. LEHMAN. Under this, could he terminate a program that is already under way? Could he actually terminate the acquisition?

Mr. COUGHLIN. Let me put it this way, Mr. Chairman. If his review indicated that a program was heading into shallow water and we needed to take contract controlling, he would discuss that with me, and yes, the underway programs can be terminated.

Mr. LEHMAN. That is what I am trying to find out. Thank you, Mr. Coughlin.

Mr. COUGHLIN. Will this office have the money and the staff to do independent studies so they can question the program managers?

Admiral BUSEY. They will have a small analysis staff that will be able to do independent analysis work. He will have an independent test and evaluation staff, a small core staff similar to the way independent test and evaluation is done in the Department of Defense. You have got a small team of experts, but you draw on other resources to flush out a team when you go in to do an evaluation of a program that is to be tested. He will have the nucleus that he needs to do the jobs that I expect him to do.

Mr. COUGHLIN. Please expand on your answer for the record, and include a discussion of your staffing plans (position levels and hiring schedule) for the office of the executive director of acquisition.

[The information follows:]

The Executive Director for Acquisition has been established with a staff of thirty people. Of these, seven report directly to the Executive Director. The seven are: Secretary, GS-10; Director, Office of Acquisition Policy and Oversight, SES; Director, Office of Independent Operational Test and Evaluation, SES; Special Assistant for Total Quality Management, GM-15; Special Assistant for Minority Business Enterprise, GM-15; Administrative Assistant, GM-14; Special Assistant for Acquisition Improvement, GM-15.

The positions have been filled with either permanent or acting incumbents except for the Special Assistant for Total Quality Management. That position has been advertised and is expected to be filled by August.

The Office of Acquisition Policy and Oversight is staffed with the director, a secretary, two GM-15's, six GS-14's and three GM-14's. All report directly to the office director. One GM-15 acts as team leader for the oversight function, the other for policy.

The Office of Independent Operational Test and Evaluation consists of the director, a secretary, an administrative assistant, and four GS-15's.

The Office of Acquisition Policy and Oversight monitors the major acquisition programs, convenes periodic program briefings for the Administrator and OST, and provides the Administrator with their independent assessment of program status. For special analyses, ad hoc teams will be assembled, directed by analysts from this office, assisted by personnel from other offices on detail as needed. In addition, funding has been allocated and a contract has been awarded to a company to provide special technical support when required.

The Office of Independent Operational Test and Evaluation reviews test requirements and test plans for the major acquisition programs, observes the actual testing at contractors plants, and provides independent status reports to the Executive Director and the Administrator. Their basic objective is to advise as to whether a system meets operational requirements and is ready for production. Their small staff is augmented with support from two contractors. Also, when required, personnel are brought in on detail from other FAA organizations for special team efforts.

The primary thrust of the organization under the Executive Director for Acquisition is to improve the quality of FAA acquisition management. This will be accomplished by improving procedures and processes, and seeing that there is a disciplined approach in their employment.

Mr. COUGHLIN. According to your agency, most of the NAS plan major acquisition programs have already begun implementation, many of them under existing contract options. Other than overseeing the independent test and evaluation function, how will the new executive director for acquisition influence projects already under way?

Admiral BUSEY. Well I think he will be influencing those projects by promulgating the FAA detailed acquisition policy guidance. He will also set up a formal FAA program review team. We do not have this formalized process now where we go through an acquisition review process where we force all the programs to go through a milestone briefing process.

He will exert his influence over programs there by bringing program management together; by bringing senior executive management together; and by bringing his independent test and evaluation people together so that everyone can lay the cards on the table and decisions can be made. So it is the formalization and the disciplining of the process that we are going to rely on to provide us the oversight that I think we need to tighten up our procedures.

NATIONAL AIRSPACE SYSTEM PLAN

Mr. COUGHLIN. A chart with which I think you are familiar shows the percentage of F&E funding budgeting for non-NAS plan projects as increasing. In 1993, more than half of F&E funds will be for non-NAS plan projects. Given the increasing funding requirements of these programs, is the NAS plan concept not becoming increasingly outmoded?

Admiral BUSEY. Yes is the short answer to that, and that is why we are in the process of shifting away from the confusing issue of the brown book with the yellow cover with the white pages and the blue pages that we call the NAS plan and the add-ons to the NAS plan. It is too confusing. That is why we are going to the capital investment program process to where we, I think, can better lay out what are the original 90 programs in the NAS plan; how are we doing towards delivering those to the $15.8 billion ceiling that I have imposed on those plans; and what is the status of the new initiatives that are coming on in the continuing capital investment programs.

FACILITIES AND EQUIPMENT OUTLAYS

Mr. COUGHLIN. Turning to outlay rates. Admiral, outlays in the F&E account in the first year of availability are slowing down, from 24 percent in fiscal year 1988 to only 11 percent in fiscal year 1989. This of course leads to a backlog of outlays from prior year appropriations. Some describe this as a "bow wave", which could result in dramatic increases in uncontrollable outlays in future years. Why are first-year outlays slowing down, and do you view this as a problem?

Mr. STOER. Mr. Coughlin, I believe that 1989 appears to be a one year anomaly in the situation, in part attributable to a delay in the start-up on the IBM contract. And we believe that we will be back on our normal spending track record this fiscal year and in the future. So we do not perceive it as a problem.

Mr. COUGHLIN. For the record, please provide a chart showing the F&E outlay rate percentages by fiscal year for fiscal years 1985-1989 and estimates for 1990-1994.

[The information follows:]

FEDERAL AVIATION ADMINISTRATION FACILITIES AND EQUIPMENT OUTLAY RATES

[Cumulative Percent]

	FY-85	FY-86	FY-87	FY-88	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Year 1	6.85	11.11	24.20	18.69	11.98	[1] 14.16	[1] 14.16	[1] 14.16	[1] 14.16	[1] 14.16
Year 2	27.25	25.45	53.06	43.28	[1] 40.58	[1] 40.58	[1] 40.58	[1] 40.58	[1] 40.58	[1] 40.58
Year 3	49.69	37.78	68.24	[1] 66.47	[1] 66.47	[1] 66.47	[1] 66.47	[1] 66.47	[1] 66.47	[1] 66.47
Year 4	67.61	53.82	[1] 84.25	[1] 84.25	[1] 84.25	[1] 84.25	[1] 84.25	[1] 84.25	[1] 84.25	[1] 84.25
Year 5	80.02	[1] 92.84	[1] 92.84	[1] 92.84	[1] 92.84	[1] 92.84	[1] 92.84	[1] 92.84	[1] 92.84	[1] 92.84
Year 6	[1] 96.34	[1] 96.34	[1] 96.34	[1] 96.34	[1] 96.34	[1] 96.34	[1] 96.34	[1] 96.34	[1] 96.34	[1] 96.34
Year 7	[1] 97.62	[1] 97.62	[1] 97.62	[1] 97.62	[1] 97.62	[1] 97.62	[1] 97.62	[1] 97.62	[1] 97.62	[1] 97.62
Year 8	[1] 100.00	[1] 100.00	[1] 100.00	[1] 100.00	[1] 100.00	[1] 100.00	[1] 100.00	[1] 100.00	[1] 100.00	[1] 100.00

[1] Estimate.

ACQUISITION PROJECT DELAYS

Mr. COUGHLIN. Long schedule delays continue to plague your acquisition projects. GAO reported in November 1988, that you experienced an average delay in implementation of two and one half years between 1983 and 1987. In their testimony presented this week, they advised us that the delays have continued—the average delay of at least 200 days since last year alone. The delays affect two-thirds of your major systems acquisitions. Why can you not get some control over these schedules on your major projects?

Admiral BUSEY. That is what I am trying to do. The 200 day delay that the GAO is referring to over the last year, I think in my mind is clear evidence of the review that we have been putting on these programs. The bookkeeping corrections that we have been making, the intensified review that I have given some of the big ticket programs, is addressing, have revealed delays.

And I have chosen that I am not going to hide these delays. I want to get them out on the table. I want to address the delays in the AAS program—the 13 to 19 month delay—so that we can rebaseline the program and figure out a way to re-incentivize our contractors so instead of constantly being working out of the hole, we have got some new incentives out there ahead of them to give them an opportunity to begin to produce ahead of the new baseline schedule.

So I think the delays that they are talking about in the last year, the signal to you and the Subcommittee should be that is an indication of the intensified review that we are taking. I am trying to get a handle on these delays so that we do not continuously come up here to you trying to explain why over-optimistic estimates of schedule and over-optimistic estimates of costs are continuously slipping and we find ourself in a position every year of trying to give you excuses. I want to set up a program where we can deliver on time and on cost.

VOICE SWITCHING AND CONTROL SYSTEM COSTS

Mr. COUGHLIN. We briefly discussed the Voice Switching and Control System earlier, but it is an example of some of the problems that have plagued the system. We have a table here that shows that estimated F&E costs for that system have skyrocketed from $247 million in fiscal year 1983 to $892 million today and the production contract has not even been signed yet. Costs in this program are increasing at an alarming rate. What is being done to control them?

Admiral BUSEY. Since the VSCS contract is still in the test and evaluation phase of the final stages of the competitive process, we have not gone to contract yet. I do not have a good handle on what the costs of the program are going to be, simply because I do not have the Best and Final Offers. We have not asked for them yet.

So I am not confident at this stage of the game that even the 1991 dollars that we have submitted to you are anything more than our best bottoms-up estimate at this stage of the game. There is still a potential in the VSCS contract for a little higher cost. It could go to $1 billion. And I simply will not know until we finish this testing process; go to Best and Finals; settle the competition; and go to contract. So by this time next year, I think I can come back with a more definitive answer, but I do not want to leave you with the impression that I am comfortable with this FY 1991 figure yet, because there are still too many unknowns.

Mr. COUGHLIN. You are saying the $892 million level is not firm?

Admiral BUSEY. That is correct.

Mr. COUGHLIN. In particular, out year costs are rapidly increasing. Only last year, costs beyond fiscal year 1991 were estimated at $168.7 million. This year, the estimate is $471.5 million. What amounts for that kind of an increase?

Admiral BUSEY. Mr. Pozesky, do you want help me on that, please?

Mr. POZESKY. Yes, sir. There are four elements of the projected cost growth between last year and this year. Thirty two million dollars is due to the additional testing that we are doing to be sure that we made the right decision in the design; $153.4 million is in the acquisition phase for spares, training, inflation and miscellaneous; $32 million for support; and an additional $36.9 million for the cost of implementing this system in the field.

Mr. COUGHLIN. Could you give us some idea of how we went from $250 million for the system to $900 million for the system? I mean, that is——

Mr. POZESKY. Mr. Chairman, I cannot——

Mr. COUGHLIN. We are talking about hundreds of millions of dollars.

Mr. POZESKY. I understand the frustration. Basically the estimate is simply a reflection of the growth and the complexity of this design and the difficulty that the contractors and the Government has had in stabilizing the requirements and getting the design understood. I know it is a frustrating experience. The reality is that we are still in the test phase and we will really not have a solid finalized design until we get out of the test phase. It is a communications switch probably larger than that of a small sized telephone switch in a city. It is a huge, huge problem.

I guess what I would say to you, Mr. Coughlin, is that, as the Administrator said, the current estimate is still based upon our judgment. We do not have a final design yet, and we will not until we get through this phase.

VOICE SWITCHING AND CONTROL SYSTEM DESIGN

Mr. **Lehman**. I just wondered about the concept itself. Is this an essential concept of the whole system? At what point is it no longer cost effective? It is sort of out of control.

Admiral **Busey**. I think it is fair for me to say, Mr. Chairman, that is a key and essential part. We are going from the present switching systems that we are using that is 20 year old technology that is manually manipulated by a technician in some remote place to switch radio frequencies and telephone lines for the controller work station to a technology that is state-of-the-art, leading edge of our ability of technology to provide this remoting capability directly at the controller's fingertips so he can shift his ground-to-ground communications and his ground-to-air communications instantaneously.

Modernizing this switching capability for the multitude of ground links for the ground-to-air and in the future—this is going to have a future capability for satellite linkage. This system is designed with moving in the satellite communications in mind. So the technology is there. It is something that we need in order to provide the controller work station all of the work efforts—the work relievers that he needs to make the decisions that he has got to make in a high-speed traffic situation. Anything you want to add to that, Marty?

Mr. **Pozesky**. I would just say that it has been an extremely complex design because it not only has to handle today's ultra-reliable communications—as you know, communications is a most critical element on the air traffic control—and it has to be absolutely ultra-reliable. But it also has to translate that technology to a variety of situations for fall-back positions and fail-safe positions. And we are going to data link. All of that has got to be switched through this technology. So it has been a long undertaking. It is core to the automation improvements that we want to make and to the system design that is in the NAS plan. It has been a very difficult development program.

Mr. **Coughlin**. You indicated that you are going to let a production contract in a few months. Will the design of the system and the cost of the system be stable before you let the contract, or are you going to let the contract before you know what the cost of the system is?

Admiral **Busey**. No. It is our intention, once we are satisfied that the competitors have demonstrated to us the testing capability of their prototype—and a key part of that is to have a prototype piece of hardware that we know that can go into production and give us the operational capability that we have specified and give us the reliability that we have specified. So we are not going to go to contract and cut metal and continue to design the thing. We are going to have it baselined.

Of course, as with any development as complex and as technology-dependent as this piece of equipment is, there will be further lessons learned. But instead of continuing to redesign it, my intention is that we will have preplanned product improvement, if you will, built into it. We will have the opportunity every year or two to provide updating modifications to the system as a whole.

But when this contract is let, we will have a baseline design, and we will be producing a product that will be standardized and that will not continue to be in the evolutionary designing stages. And therefore, I think we will be able to have a good handle on the cost and the schedule for delivery of this device.

VSCS CONTRACT DELAYS

Mr. COUGHLIN. Last year, the Committee asked the FAA to describe the impact of delaying the VSCS contract award six months so that operational testing could be completed. We were told that a six month delay in the contract award from December 1989 to June 1990, would result in additional fiscal year 1990 cost of up to $118 million. Now this contract has been delayed for other reasons by the FAA an even longer amount until August, 1990. And yet the fiscal year 1990 budget is less, not more, than we provided last year. It seems that when we suggest a delay it costs more, but when you suggest a delay it costs less. Why is this?

Admiral BUSEY. Well that is a fair question, sir. And I think last year part of the answer was derived because we were not thoroughly aware of the slippage in the AAS program and therefore, the costs of impact to the AAS program were also priced out in this delay. Since then, there has been a slippage in the AAS program so that the delay that we have imposed on the further testing of VSCS has had no impact on the AAS system, therefore there has been no dollar cost attached to that slippage. And I think that accounts for the difference. Is that right, Marty?

Mr. POZESKY. Exactly.

Admiral BUSEY. Okay.

ADVANCED AUTOMATION SYSTEM

Mr. COUGHLIN. Turning to the AAS. Your largest F&E program in the fiscal year 1991 budget is that, budgeted at $556 million. The Committee is advised that you have a 13- to 19-month delay in the program, compared to last year's schedule, due to software difficulties. This is in addition to a four and a half month slip last year. What are the technical problems, and why can you not get a better handle on the program's technical risk?

Admiral BUSEY. Well again, as I said earlier, I think the slippage is what we are laying on the table. The signal you should take is that that is an example of the intensified scrutiny that we are putting on this and other programs. This is a very technical high-technology program. I think we are coming to grips with it.

We believe that the delays that we have talked about, including a six month delay that I have caused to the program by changing the employment strategy to lower the risk that we would take by causing it to be implemented into the field in a sector-by-sector manner instead of an entire center at a time. I am not sure that we can take the risk and stand the vulnerability that that might impose on us. But all I can tell you is that we believe that we have got a handle on the risks in the AAS program at this stage of the game.

I am working now, because of these delays, to baseline the program; to stop doing engineering modifications on this program as we go along, but to baseline it; to redo the contract to that baseline; and to negotiate with IBM, the prime contractor in this case, in a way that we can re-incentivize them—take the incentive dollars that were set aside as part of the contract that they are now way in the hole on and have no chance of performing to—but to re-incentivize them so that hopefully in the future they can buy back some of this delay that we have experienced in the program in the last year.

RISK REDUCTION DEMONSTRATIONS

Mr. COUGHLIN. Last year, the FAA testified that: "Each contractor conducted 11 risk reduction demonstrations covering the following areas: software development; Ada compilers; local communications network; fault tolerance and availability; and man-machine interface. These activities were analyzed for remaining risk and a report was generated." What was this report's assessment of remaining risk in each of these areas, and what was the date of that report?

[The information follows:]

At the conclusion of the Design Competition Phase (DCP), a report was prepared for each contractor which assessed the results of the DCP risk reduction activities and the risks identified during the ISSS Critical Design Review. The IBM report was dated August 5, 1988, and contained an assessment as follows. The risks in each area were ranked as High, Medium, or Low, principally on the basis of the possible effects on the schedule. A High risk, meaning a possible schedule slip of 20 percent or more, was found to exist related to the Ada compilation system, the fault isolation and recovery mechanisms, and the lighting of the Sector Suites. Medium risks, meaning a possible schedule slip of 10 to 20 percent, were assessed against software engineering, the Ada Programming Support Environment, the reliability and maintainability of the Local Communications Network, the fault detection and containment methods, the timing and synchronization of distributed recovery operations, the controller display language (Medium to Low), the Common Console design, the ISSS hardware and software, and the ISSS capacity and response time. All other risks were judged Low, or representing a possible schedule slip of less than 10 percent.

Mr. COUGHLIN. Why was FAA's risk reduction program not adequate to foresee these significant problems, which were announced only a short time later?

Admiral BUSEY. Marty?

Mr. POZESKY. We did foresee some of the problems in the risk reduction. We identified risk areas in terms of the Ada compiler. We identified risk areas in terms of the man-machine interface. When we put those together and assessed them, we simply announced the delay. It may help you understand that if you were to look at the contract right now, you would see that the contract is probably four to five months behind its current schedule. What the 13 month estimate really represents is our projection, based upon our current known risk and their progress of what they will actually be behind when we get to the delivery.

Mr. COUGHLIN. FAA officials advise the Committee that the 13 month slip can be accommodated within your available budget. Did you ask for more funding in the past years than you needed at that time, or did you anticipate such lengthy delays?

Mr. POZESKY. No, Mr. Coughlin. The slip is largely associated with the fixed price incentive portion of the contract. There is a cap on the Government's liability. We have consistently budgeted this program at the ceiling price rather than at the target price so that is why we can absorb this without increasing the request to the Congress for additional funds.

Mr. **COUGHLIN**. If development costs for this program escalate beyond the ceiling price stated in the fixed-price contract, do you intend to "hang tough" and require the prime contractor to pay all of these costs?

Mr. **POZESKY**. We certainly do.

Admiral **BUSEY**. Yes, sir.

ADVANCED AUTOMATION PROGRAM

Mr. **COUGHLIN**. GAO indicated there was a need to consider alternatives to achieve an earlier automation capability in the terminal areas. Is this a new need, and is the FAA doing this, and would this be in conflict with the advanced automation program?

Admiral **BUSEY**. We believe that it is a prudent need that we need to address. As GAO mentioned to you, last year we experienced several instances where data was being lost from the controller's scope. We have put in a lot of intensive effort onto that. We feel that we have solved that problem at our terminal control facilities for now by adding additional processors and putting in place solid state memory devices. That is going to buy us capacity for the next several years, which will more than accommodate, in my judgment, for the delays that we have just talked about in the AAS system.

But what we are doing internally is looking at a host of alternatives to provide new systems in the terminal control facilities. I can give you a couple of examples. We are looking at the technology that we have in place at the New York terminal radar facility—the so-called ARTS III system—which is a distributed system different than that which exists at our other radar facilities.

We are looking at options of installing that kind of technology at some of our larger and busier terminal radar facilities such as Los Angeles; Dallas/Fort Worth; Chicago. We are looking at re-hosting the software in that system and putting it into AAS type of hardware. So there are constantly alternatives under way that we will address and provide you information on as we come to decision processes.

And this also adds into, I think, the point that Mr. Mead made yesterday when he addressed the Interim Support Plan—that we need to constantly update you on just what is in the Interim Support Plan. It is intended as a bridging device to take us from today to the future system. And as we encounter new experiences, including the delays in the delivery of the new systems, there are of necessity going to be different programs moving in and out of that Interim Support Plan.

That is why, I think, in the capital investment program that we come to you, you are going to have a much more vivid and easier to follow picture of what the Interim Support Plan is. But as we evolve these new options, then we will be coming back to you fully illuminating those and ask for the budgetary support or the reprogramming that we need to accommodate to these changes.

Mr. **COUGHLIN**. It all costs more money.

Admiral **Busey**. Yes, sir. Nothing is free.

CORN PROJECT COSTS

Mr. **Coughlin**. Here we come to CORN. Another of your major planned acquisitions is the Computer Resources Nucleus (CORN) program. According to the GAO, this project's cost has risen from $148 million to $1.5 million—a tenfold increase—and your assumption of a 30 percent annual increase in ADP services is highly questionable. Have you reviewed the GAO's concerns?

Admiral **Busey**. Yes, sir. I read the GAO report three days ago. That is when I got it. We have only become aware of the detailed contents of the GAO's findings and recommendations in the last month. We have spent a lot of time trying to see if we could not provide them with more information that would change their minds. I am very perplexed by this particular program, primarily because as a former auditor general of the Navy, I am well aware of the GAO precepts, how they work. I have got auditing experience.

I have worked with the GAO for a number of years. I have had an open-door policy with Mr. Mead and his team since we have come aboard. I am basically in full agreement with better than 90 percent of the GAO's recommendations as it applies to the FAA, except for CORN. I am very concerned that we in the FAA are so strongly polarized and in disagreement in the case of CORN with the recommendations of the GAO. Something is wrong, and I am searching for ways to try to get a better meeting of the minds. We have not fully utilized that report with the GAO yet. We are having technical meetings with them next week.

And then I am searching now to find a group of experts either from the Department of Defense through OMB, through the Federal simulations organization, so that we can get an independent third party to come in and take a look at what we are trying to do to see if we cannot come to a better meeting of the minds.

Now specifically, the question about the growth from $148 million to $1.5 billion. The program has not grown that way. We have a much larger scope today compared to the 1986 scope. What we want to do is contract out our mainframe database management system instead of continuing to buy about four or five different mainframe systems that we will operate all of our databases on. We believe we have a capacity problem. We can measure that capacity problem. The GAO has taken us to task before because we could not measure capacity problems in our terminal radar facilities. But in this case, we have got capacity measuring devices, and we know we have got a problem.

And we have a delay. Our workers simply cannot get timely access to the system. We think the delay is caused by capacity. That is why we are going this innovative way. Initially, we had planned to move only a few of the FAA's databases to this contracted out technology, hence the $148 million estimate. The idea has generated other interests. Other departments in the FAA said, "This looks like a good, new innovative strategy. We would like to get our databases into that process." Then the Department of Transportation and the other modes want to get in with accounting systems, payroll systems.

So it has been an evolutionary potential growth up to $1.5 billion. The bottom line is the conversion costs of the FAA programs amounting to some 200 or so databases with the annual operations of that database, based on a fixed pricing contract type of operation, will cost us something like $800 million, I believe, is the figure there—a little in excess of $800 million. The balance is options available to other users outside the FAA that might like to join in to this contract type. So that is what the dollar figures represent, and it is not a wild cost growth from an initial estimate of a few databases up to the $1.5 billion figure.

Mr. LEHMAN. Mr. Coughlin.

Just for my own information, that $1.5 billion is over a five or 10 year period?

Admiral BUSEY. It is a 10 year period of time, sir.

Mr. LEHMAN. So it amounts to about $150 million a year.

Admiral BUSEY. Yes, sir.

CORN PROJECT CONTRACT

Mr. COUGHLIN. What is your time frame for working this out with the GAO, and can we save some money in the meantime?

Admiral BUSEY. Well I obviously have to do this fast. We have been in the competition of this process for more than three years. The Congress has told us we cannot obligate money. You cannot go to contract until we are satisfied that we have got all this together. We are in the final throes of the competitive process right now and had planned to perhaps make a determination and an award as early as June. But I have clearly got to delay that now, because I have got to work together with the GAO. I have got to respond to their report. And I have got to satisfy myself, because of this tremendous dichotomy that is really confusing me.

So we are going to be moving as fast as we possibly can to solve this issue and to come to a meeting of the minds. We think that we have got an innovative, new method of procuring data base management services. It has not been done before. We are out on the leading edge of the power curve. We certainly do not know all the answers. So now I have got to quickly try to get myself some experts and working with the GAO and their experts to see if we cannot all together learn a little more.

Mr. COUGHLIN. So you are not going forward with the contract until you get the approval of the Congress?

Admiral BUSEY. Of course not, sir. You have told us that we cannot obligate those dollars. What I would like to do is to work fast enough so that I can give you an interim report before you go to markup so that you have got a little more confidence and understanding in what we are doing, and we will just solve the problems of getting the authority released by the Congress here as soon as we can.

CORN PROJECT PRIME CONTRACTOR

Mr. COUGHLIN. Given the large growth in estimated cost for the CORN program, have you checked with the prime contractor for the existing system to get an estimate for upgrading that system? If so, what is the estimate, and is it credible?

Admiral **Busey**. Brooks, do you want to help me on this?

Mr. **Goldman**. Yes. When we did the original studies—you have to keep in mind we do not have one prime contractor today. We have the IBM system at Oklahoma City. We have 12 Data General systems around the country at our regional headquarters. We have a Honeywell system at the Tech Center, and we have several Wang systems around. All of those would be essentially replaced with the CORN concept. We estimated that if we stayed with the way we have been doing business with all of those systems and just upgrading those systems as the needs arise, it would cost better than $2.2 billion over that 10 year period, as compared to $875 million.

The reason it would cost that much more is because, based upon our experience in the past, the systems need to be upgraded about every two to three years. So we would expect our current systems around the country would have to be brought up to a more modern technology about once every three years with the resulting costs of training people for operating and maintaining the systems; for some possible conversion of the software that is being operated by those systems. It is those types of problems that we feel we can avoid if we go to the CORN process.

Mr. **Coughlin**. Please expand on your answer for the record.

[The information follows:]

Cost and configuration data on both IBM and Data General equipment, the manufacturers of the central processors installed in our existing 12 ADP facilities, was provided in response to our request for industry input to our feasibility study. That information amounted to component items listings and associated costs for configurations of components that would provide the requisite capacity. Those items costs for hardware and software were aggregated and used in conjunction with other facility costs, such as space, staffing, power, etc., in arriving at the $2.2 billion estimate for the cost of expanding the existing facilities to meet all capacity needs. We cross-checked all such industry data input with commercial, GSA, and, where available, other pricing material to validate the creditability. We believe the data to be credible.

Mr. **Coughlin**. When was that estimate made, and has it been recently reviewed?

Mr. **Goldman**. The estimate was made in about 1987. We have looked at it, but if you are saying have we gone back and reassessed it again in recent times, no sir, we have not.

Admiral **Busey**. And we will be trying to do that again in this process that we are going to enter into next week.

CORN PROCUREMENT

Mr. **Coughlin**. Last year, you advised us that you expected heavy competition for the CORN procurement. Thirty vendors attended the pre-proposal conference, and three purchased the specification package. We understand that procurement regulations inhibit you from telling us the actual number of bids received, so we will not ask you that. More generally though, are you satisfied with the final number of bids you actually received? If not, why not?

Admiral **Busey**. Based on the fixed price conversion requirement that we established as part of the RFP, that certainly had a contributing effect to the competitive field. We felt that it was necessary to go that way so that we limit the Government's commitment. And based on that initial RFP on the specifications that were set up by the FAA when we entered into this process, yes. I am satisfied with the players.

GENERAL-PURPOSE ADP INDUSTRY

Mr. COUGHLIN. On the whole, is the general-purpose ADP industry highly competitive today, or are sole source procurements the norm?

Admiral BUSEY. I think it is pretty highly competitive. Would you gents, in your experience here in the FAA?

Mr. GOLDMAN. Absolutely. Very much so.

Mr. COUGHLIN. From your defense experience, would you not say that costs are likely to be higher, and the Government's subsequent position weaker, in the absence of strong competition?

Admiral BUSEY. Yes. The short answer is yes.

Mr. COUGHLIN. What input did the FAA receive from industry requesting modifications that could have solicited additional bids, and what was the FAA's response?

Admiral BUSEY. Again sir, that is a part of this overall procurement process that we are involved in. And I am not sure that I am legally able to give you a response to that because of those requirements.

MODE S PROGRAM

Mr. COUGHLIN. Turn to the Mode S program. Last year, the FAA stated the following in our hearing concerning the Mode S program, "The contractor's cost performance has been good. They do anticipate they will be able to deliver the system for the cost we have estimated. Their technical accomplishments we anticipate will be good. We do anticipate that the system will meet our technical needs."

That was in April 1989. However, we are now advised by the GAO that only two months later, you notified the Mode S contractor, via a cure notice, that its continuing inability to perform would lead the agency to terminate the contract. A cure notice is a serious legal step and must have been under consideration when the FAA testified. How could FAA officials not have been aware that the agency was considering terminating the contract when they testified last April, and what does all this say about the FAA's credibility?

Admiral BUSEY. Mr. Coughlin, I have the man here at the table that made that statement last year, and he is a gentleman for whom I have the utmost confidence in his credibility. I will let him answer the question. Mr. Pozesky?

Mr. POZESKY. Thank you. In a short sentence, neither the FAA nor I knew anything about the problem which led to that cure notice. It was a technical design problem which was discovered about a month after our testimony. It was a fairly fundamental design problem that was discovered, in how they designed the computers. When it was discovered, it was estimated that it would take nine months to a year to correct that problem. Based upon that and other frustrations, the contracting officer did issue a cure notice.

I might, if you would, go on to say that if you were to ask us today about our perception of this program today, we may give you a very similar answer. We continue to believe that the contractor will be able to deliver us a technical design which meets our needs. We have just recently signed a modification of the contract two or three days ago. It clears up all previous claims, and gives the Government back some consideration. I think about $1 million or $1.3 million changed hands from us to the contractor, but for that we got some additional requirements and capabilities and facilities that we needed.

So basically, the contractor is performing on cost. As I said last year, we have sacrificed schedule for that, and we have on our hands yet another schedule delay. But we do believe the contractor will deliver this system to us.

Mr. COUGHLIN. Can you expand on that agreement for the record, please?

Mr. POZESKY. Yes, sir.

[The information follows:]

As consideration for the schedule slip, the FAA received a number of goods and services, including full support for all efforts associated with the first release of software. The contractor will maintain this initial software and provide any updates required at delivered sites after the software is completed. The FAA also received the loan of a system for experimental use at Lincoln Laboratories on the Parallel Runway Monitoring Program (PRM). Finally, the FAA received at no cost several software modifications, additional documents, and design presentations from the contractor.

MODE S DEPLOYMENT

Mr. COUGHLIN. Your current fixed-price contract has a ceiling price of $271 million for delivery of 137 Mode S systems. Given the continuing problems in developing one system, what is the prospect that all 137 systems will be developed and deployed without an increase in the ceiling price?

Mr. POZESKY. Mr. Chairman, we believe as I just said, that we will be able to get delivery. It is a fixed-price incentive contract. We will be operating at ceiling and the contractor will have to absorb the full cost of any additional requirements. So we are still optimistic that we will get all 137 systems.

Mr. COUGHLIN. Even after proposing changes to resolve problems, the contractor has not been able to maintain his proposed schedule and FAA has again revised its schedule—slipping delivery of the first fully operational system another year, from April, 1992 to April, 1993. (The original estimate was 1988.) Do you agree that these events should trigger a reexamination of the Government's contract options? If not, how long should we continue down the current path?

[The information follows:]

We do not believe a re-examination of the Government contract options are appropriate at this time. We believe the modification just signed contains a more realistic schedule to complete the remaining integration, test and delivery of the first system. Significant management changes and oversight have been instituted by both the contractor and FAA on the program. We will continue increased oversight activity pending successful completion of critical progress milestones over the next 16 months.

MODE S SYSTEM JUSTIFICATION

Mr. **Coughlin**. GAO indicated that FAA was buying an additional 259 Mode S systems without proper justification. At last year's FAA testimony, the subject was tentative in tone. You recognized the need to thoroughly justify this proposal. In fact, you indicated that you knew that additional justification needed to be displayed to the Committee and even within the administration before proceeding. Have you changed your mind? Are you ignoring the need for additional justification before proceeding? Is there any money in the budget for the additional quantities of Mode S systems challenged by GAO?

Admiral **Busey**. No, sir. And I have not made a decision to proceed for the additional 259 programs. We recognize the need to thoroughly justify that, and that will be done before, and coincidental with, any future decision to go that way. There are other options—other alternatives—that are being looked at, but by no means have we made the decision to continue. We have got 137 systems coming. That is what we need. That is what we are planning to get with the delays that Mr. Pozesky talked about.

MODE S ACQUISITION

Mr. **Lehman**. Mr. Coughlin, let me just ask one question. There has been a lot of confusion in the Mode S acquisition. Would the acquisition czar—should such a person had been in place at that time—alleviated this, or prevent this, or helped this situation as it went along? Would that have been part of his responsibility to prevent something like this?

Admiral **Busey**. Certainly he will have a preventive role in these types of systems. It is almost impossible for me to say, Mr. Chairman, that had he been in place this would not have happened.

Mr. **Lehman**. It is a hypothetical question.

Admiral **Busey**. Yes, sir. But I think the changes that we have in place with the acquisition czar will give us a little better discipline over these types of situations in the future.

Mr. **Lehman**. Thank you. Mr. Coughlin.

MODE S SYSTEM REQUIREMENTS

Mr. **Coughlin**. GAO indicated that the Mode S program had been under way for many years. It started in R&D; went through the development of a full prototypes by Texas Instruments; and now went into production. I guess the program ran into difficulties in the production phase, but I am not sure that it is traceable to requirements changes. Have the requirements for the Mode S system changed?

Mr. **Pozesky**. No, Mr. Coughlin, they have not. As GAO indicated, we went through a very detailed design back in R&D and built three prototype systems. We actually built a test bed. The basic Mode S design given to Unisys was unchanged. I think the computer capacity requirement went up. I would point out that the Mode S signal format is identical to what it was 20 years ago.

It is built in to our TCAS system, totally unrelated to F&E, but the design of the Mode S system is the vehicle by which TCAS operates when it is implemented in the aircraft. So what we have on our hands is a problem with the particular engineering design selected by the contractor—nothing fundamental about the Mode S system.

NEW DENVER AIRPORT

Mr. Coughlin. Turning to the new Denver airport. Last year, the FAA's estimate of total F&E costs for the new Denver airport was $156.4 million. The current estimate is now $196.2 million. What caused this increase?

Mr. Stoer. Mr. Coughlin, if we had to rewrite that information sheet today, we would do so. The cost of bringing the facility on-line is more in the vicinity of about $170 million. The $196 million included two additional items that are really not directly related to bringing Denver on-line. Included in this amount are costs for MLS installations. It also includes about $14 million for a general purpose office building that we would like to have in the Denver area, but is unrelated to the facility itself.

Mr. Coughlin. Do any of those changes affect the FY 1991 budget request?

Mr. Stoer. No, sir. They do not. The $60 million in the FY 1991 budget is solely related to on-airport equipment such as the TRACON, tower, ILSs and the radar.

DENVER ENVIRONMENTAL IMPACT STATEMENT PROCESS

Mr. Coughlin. The Committee was advised last year that the Environmental Impact Statement (EIS) process was to be completed in July 1989, and major facility construction was to begin in the winter of 1989. Were those schedules met? If not, why were they not?

[The information follows:]

The Final Environmental Impact Statement was signed on August 8, 1989, and the Record of Decision on September 27, 1989. The delay was caused by extensive public comment received and the necessity to fully address all the issues raised. The construction of the TRACON was delayed to accomplish a reexamination of site alternatives. The airport traffic control tower construction slipped in order to coordinate its design with the sponsor's airside terminal building design and to integrate its foundation design with the structural components of their automated ground transportation system. Construction contract procurement for both of these major facilities will proceed this summer.

NEW DENVER AIRPORT FUNDING REQUEST

Mr. Coughlin. How was this year's request of $60 million for the Denver airport determined?

[The information follows:]

In order to provide the required equipment and construction to meet the scheduled commissioning of the New Denver Airport in October 1993, $60 million is required during FY 1991 to accomplish the following activities:

FY 1991 F&E budget request

	Amount
Approach Light Systems (ALSF-II)	$5,650,000
Airport Surface Detection Equipment	1,610,000
Airport Surveillance Radar (ASR)	4,106,000
Airport Traffic Control Tower (ATCT)	2,493,000
Airport Cable Loop	8,900,000
Category I Instrument Landing System	1,456,000

	Amount
Category III Instrument Landing System	3,240,000
Medium Intensity Approach Light System	3,290,000
Precision Approach Path Indicator (PAPI)	1,760,000
Remote communication Facilities (RCF)	3,430,000
Remote Maintenance Monitoring (RMM) Systems	1,022,000
Runway Visual Range (RVR)	1,350,000
Terminal Radar Approach Control (TRACON)	10,107,000
Very High Frequency Omni-directional Range	1,746,000
Front Range Satellite ATCT	3,000,000
Low Level Windshear Advisory System (LLWAS)	1,948,000
Distance Measuring Equipment (DMEL)	900,000
Air Traffic Control Telecommunications System	437,000
Relocate Remote Communications Link (RCL)	205,000
ICSS Equipment	2,850,000
Television Microwave Link (TML)	500,000
Total	60,000,000

MICROWAVE LANDING SYSTEM POLICY

Mr. COUGHLIN. Turning to the Microwave Landing System, our old friend. Admiral, in the December 27, 1989, Federal Register, the FAA published a policy statement regarding the Microwave Landing System. Would you share with us the important aspects of that policy?

Admiral BUSEY. Yes, sir. I really put that policy out to clear the air following the contract action we took to terminate the production that we had under way early last year. There is nothing new there. I was basically reiterating that is our intent to continue the evolution, the development and the procurement of the Microwave Landing System, and at the same time we will continue the procurement and installation of instrument landing systems. We will strive to meet the ICAO agreed-to switch over of 1998.

So there was really nothing intended to be new there. It was just a restatement, since I had been aboard and since we had taken a contract action, of what the FAA's policy was.

Mr. COUGHLIN. Does this policy assume the successful demonstration of MLS technology? And if so, does the policy also indicate that these tests have not yet been conducted?

Admiral BUSEY. Yes. We do intend to continue the demonstration of the technology. We have got a nine-step, well-articulated, publicized, and I think well understood demonstration series of tests under way. And I think the policy—I attempted to clearly indicate that those tests were under way. I may not have been successful.

MICROWAVE LANDING SYSTEM DEMONSTRATION PROGRAM

Mr. COUGHLIN. Last year, the FAA estimated the fiscal year 1991 funding requirement for the MLS demonstration program to be $7.6 million. The actual budget request is $35.2 million—five times as much. Why is that?

Mr. POZESKY. Mr. Coughlin, the budget request includes $22 million for starting the prototype procurement of MLS for CAT II and CAT III systems. So that really needs to be subtracted for an apples to apples comparison. The additional cost is to obtain some equipment that we need for the testing and demonstration—some equipment to help us with the nine demonstration programs.

Admiral BUSEY. And as he mentioned, the $20 some million that is there for the new procurement for the mode II/III systems—

again, as I think we have informed the Subcommittee, we intend to go ahead with our request for procurement so that we do not lose time, but we have no intention of obligating any funds until the demonstration projects are complete and successfully demonstrate the feasibility of this process. But we intend to go with the RFP in the interim so as to not cause any one year or more delay.

Mr. COUGHLIN. Do you know when the demonstration will be completed?

Admiral BUSEY. The demonstration should be completed later this—some of them are later this year, and others are into early 1991.

Mr. POZESKY. Yes. We fully intend to be able to give you a full report before next year's hearings on the success of those tasks.

Admiral BUSEY. And I might say that we are beginning to get some preliminary indications from some of the tests. We have had airline pilots flying a 747 simulator in Holland, flying curved approaches with short straightaways—very favorable and very positive comments. We are beginning to get preliminary indications from MIT, the experts that have been doing the study on frequency interference in the ILS system. And their preliminary results are beginning to indicate that they are in total consonance with our projections. But we do not have their final data yet.

CURVED APPROACHES

Mr. COUGHLIN. One of the few remaining selling points of MLS is curved approached capability. Has the FAA studied the noise impacts that curved approaches will create over new neighborhoods, or would MLS curved approaches be like the east coast plan in New Jersey where changes had to be made to satisfy noise complaints?

Admiral BUSEY. We are constantly looking at the impacts of changes in the routing of traffic into and out of airports that the impacts the noise created thereby has on the underlying population. That is ongoing in the Boston area right now with helicopter routes.

You mentioned the New York area. In the New York/New Jersey area, as a matter of fact, one of the curve linear approaches into Kennedy field, the Canarsi approach, is presently a visual approach. It is out over the water, so that it does not impact anyone noise-wise. And this type of approach has been flown and demonstrated using the MLS system. But the direct answer to your question is, we are constantly aware of the need for us to consider noise impacts.

HAZELTINE CONTRACT DEFAULT

Mr. COUGHLIN. Is the FAA aware that the Air Force awarded an MLS avionics contract to Hazeltine after they had defaulted on the MLS contract with the FAA?

Admiral BUSEY. Yes.

Mr. COUGHLIN. Did the FAA warn the Air Force about Hazeltine's previous record with Government contracts?

Admiral BUSEY. We are aware that Air Force contracting officials did consult with us in their search for past performance of the contractors. Even though we had taken contract action against that particular contractor, they had not been placed on the list whereby they were not reachable by the Department of Defense. But the Air Force was fully aware of the action that we had taken, and they decided to proceed even with that information.

AIRPORT CAPACITY

Mr. **Coughlin**. Turning to airport capacity. Do you wish to continue, Mr. Chairman?

Mr. **Lehman**. I think we will go maybe until about 12:30 and then break after that.

AIRPORT CAPACITY

Mr. **Coughlin**. Turning to airport capacity. As we have discussed in previous years, one of the most serious problems affecting airport capacity is local opposition to new runways and new airports. To what extent do you consider this to be a serious problem, and what are you doing to alleviate the problem?

Admiral **Busey**. It is a serious problem, Mr. Coughlin, and one of which all of us in the FAA are extremely sensitive to. And of course, as an operational and a regulatory agency, it is not our job to build airports. We do not make those decisions. That is a local community issue. We, through our people out in the field, are regularly working with local community Governmental bodies and other interested groups to provide them the objective advice and counsel and analysis that they need to help them make decisions. So we participate in an educating and a cooperative role with local communities, but that is about the maximum extent that we can go to in view of our roles.

Mr. **Coughlin**. Of course you cannot have a national system unless you have airports.

Admiral **Busey**. That is true. And we have got the issue, though. The national air space system overlies local communities. There are issues of local community and state's concerns versus Federal concerns. So we in the FAA have to walk constantly that fine line between the so-called state's rights issues and the Federal issues. I personally believe that we need to do a much better job of educating our public than we have done. We need to have more public listening sessions; more open hearings, if you will, on the issue of noise so that our citizens can make more informed judgments and determinations as to what restrictions are going to be put in place at local airports.

AIRCRAFT NOISE

Mr. **Coughlin**. As you suggest, most of the local opposition to airports is because of aircraft noise. While the Secretary's transportation policy recognizes that aircraft noise concerns are an obstacle to construction of new airport capacity, it seems to leave the problem to the local communities. However, as indicated last year, about 400 U.S. airports, including 90 percent of the hub airports, have imposed some form of noise restrictions. Do you believe these restrictions limit capacity and affect the operations of our national aviation system?

Admiral **Busey**. The answer to that question is yes. I do believe those local noise restrictions that are not standardized—they are widely different—have the effect of impacting the capacity of that airport, and they also have the potential to interfere with interstate commerce—with the flow of traffic in the system. That is why I think we have to come to grips with the issue.

Mr. **Lehman**. Mr. Coughlin.

Mr. **Coughlin**. Yes, sir.

Mr. **Lehman**. Is the biggest problem the curfew problem, or is the biggest problem the takeoff and landing patterns?

Admiral **Busey**. I think it is a combination, Mr. Chairman. And I am not sure that I know the answers well enough to be able to say it is one or the other. I think it is a combination. But noise restrictions—the curfew begins to limit access to the airports by the parcel service and package carriers, because they are flying older, noisier aircraft. So you begin to restrict their access to the airport, and that has an impact on businesses and citizens that need their services.

I think the takeoff and the departure paths certainly have an impact on the rapidity or the closeness with which you can vector traffic in and out of an airport. So it is a combination, really.

LOCAL NOISE RESTRICTIONS

Mr. **Coughlin**. Do you believe there should be Federal preemption of the conflicting local noise regulations?

Admiral **Busey**. I have got to walk the fine line there, because of the issues that I mentioned to you before. I have got the statutory responsibility for the management of the nation's air space, but we have also got the issue of community and state's rights. And I am not sure that we need to consider the issue of Federal preemption at this stage of the game. I would rather consider going through the process of educating the public, having some meaningful exchanges, and see if there are not further accommodations that can be reached short of having to consider such things as Federal preemption.

Mr. **Coughlin**. Would you indicate for the record the number of airports that have local noise restrictions?

[The information follows:]

Approximately 400 local airports have reported taking some kind of action to reduce aircraft noise.

AIRPORT NOISE POLICY

Mr. **Coughlin**. Last year, your agency testified that the three elements in the airport noise policy were (1) limiting the imposition of restrictions on operations, (2) phasing out stage 2 aircraft, and (3) controlling land use around airports. Since you are leaving noise restrictions to local authorities, what are you doing on the other two elements?

Admiral **Busey**. The national transportation policy, as you mentioned earlier, does address the noise issue. I testified yesterday that we in the FAA are going to an FAA strategic plan. Part of the process that we have been discussing as the elements of our strategic plan is facing up to the noise issue. I believe that it is now my responsibility to build on the basic guidelines that the Secretary of Transportation has given all of the modes and specifically I need to begin to deal, from an FAA standpoint, with the noise issue.

We envision having some public hearings; getting more involved in public education; pointing out the needs for careful and restrictive zoning around airports; pointing out the needs for us moving in a national way towards stage 3 aircraft. We need to do it from a national standpoint, since we have already got the European common market taking a stance against the noisier aircraft. We simply have to face up to that here in our country. And we can no longer deal with local community curfew restrictions that prohibit stage 2 aircraft and allow only stage 3 aircraft arriving during times of night, because that is forcing the air commerce situation into varied and different paths.

So we need to approach it in a standard way, and about the only tools I have available to me are education, public awareness and getting my people in the field out there with local communities.

PART 150 NOISE COMPATIBILITY

Mr. Coughlin. Last year, we were told that you were evaluating your Part 150 noise compatibility program. What were the results of this evaluation? How effective did you find your Part 150 program and what changes, if any, did you make as a result of your evaluation?

Mr. McDaniel. Mr. Coughlin, that evaluation has been completed. The final report has been prepared. It is awaiting signature now for transmission to the Congress. Principally, it found that there was need for improved guidance to the communities conducting Part 150 studies with regard to the elements to be considered and the way in which they were evaluated. There was a need for the streamlining of that process, and there was a need for better delegation of authority to the regions in order to conduct those. We are in the process now of beginning the regulatory changes which would implement those recommendations.

AIRPORT CAPACITY UNDER-UTILIZED

Mr. Coughlin. Last year, it was indicated that there were 37 scheduled service airports with presently under-utilized capacity. In view of this, to what extent do you believe our airport capacity problem is due to under-utilization of available runway space?

Mr. Griggs. Of the 37 airports, we do believe that there is some possibility to expand capacity. However, you have got to look at what those airports have to offer. Do they have baggage systems? Do they have the capability of handling the people? What is the community attitude? And what is the airline marketing decision to move into it?

I think one of the best examples of a remote airport being used which has just opened that will in fact relieve congestion is Stewart Air Force Base in Newburg, New York. I think the demographics and the people that airport will serve will actually take quite a load off the other three airports in the New York area. We do in fact look at that, sir.

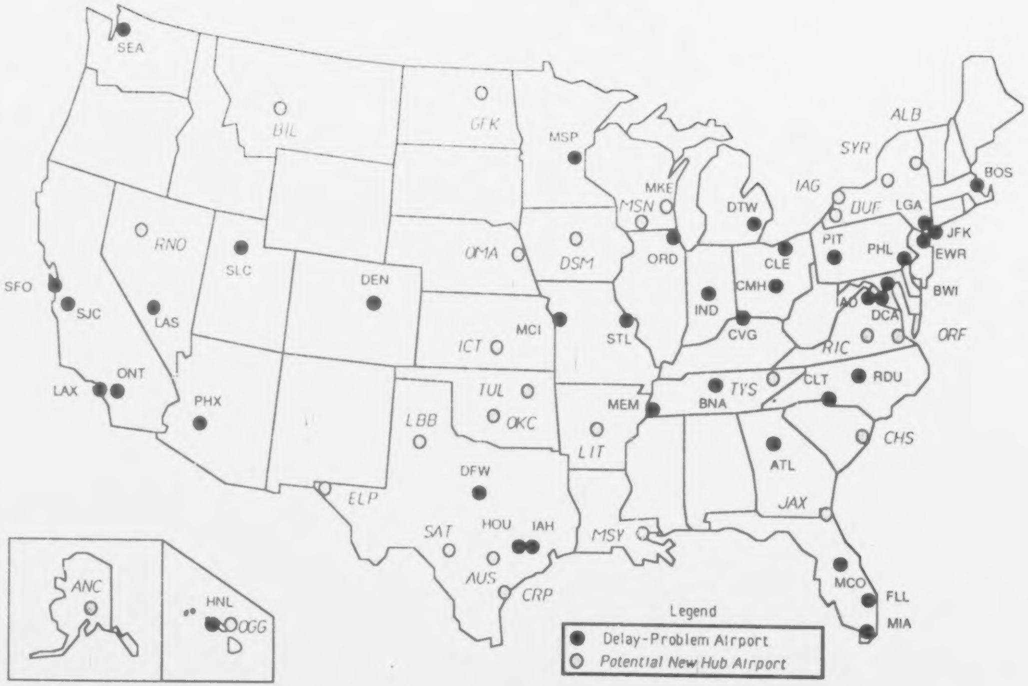
Mr. COUGHLIN. To what extent do you consider the availability of nearby under-utilized capacity in making decisions on the allocation of your discretionary airport capacity grant funds? If you do not, why do you not, and if you do, can you cite some specific examples of where this was a determining factor?

Mr. GRIGGS. We do that, sir. We look for local support. We look for the expansion requirements, and we look for airline interest. In particular, as the airlines are beginning to look for what they call "subsidiary hubs", we do try to work with the cities on that. And a pretty good example was the decision of American to expand at Dallas and the opening of Nashville. And we were very, very supportive of the Nashville growth, and also you look at other cities like Columbus/Dayton and what has happened in Charlotte, North Carolina. So yes, we do do this.

POTENTIAL HUB AIRPORTS

Mr. COUGHLIN. Please update for the record the airport capacity information contained on pages 135 through 137 of last year's hearing record.

[The information follows:]


SEA
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IAG
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BUF
LGA
JFK
EWR
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PHL
BWI
IAD
DCA
ORF
RIC
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DSM
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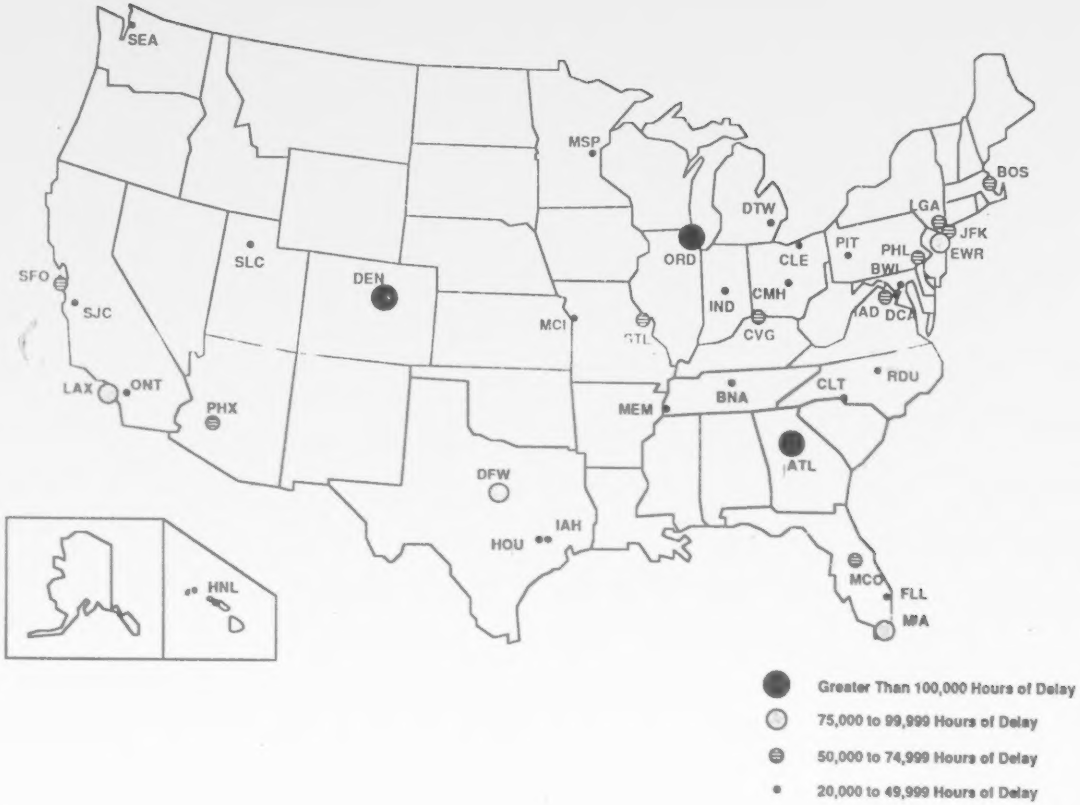
DFW
JAX
ELP
SAT
HOU
IAH
MSY
AUS
CRP
MCO
FLL
MIA
ANC
HNL
OGG
Legend
● Delay-Problem Airport
○ Potential New Hub Airport

FIGURE 9-2. POTENTIAL NEW CONNECTING HUB AIRPORTS MORE THAN 50 MILES FROM 1997 DELAY-PROBLEM AIRPORTS AND HAVING DUAL IFR APPROACHES


SEA
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MCI
STL
ORD
DTW
IND
CMH
CVG
CLE
PIT
PHL
BWI
IAD
DCA
LGA
JFK
EWR
BOS
RDU
CLT
BNA
MEM
ATL
DFW
HOU
IAH
MCO
FLL
MIA
HNL
Greater Than 100,000 Hours of Delay
75,000 to 99,999 Hours of Delay
50,000 to 74,999 Hours of Delay
20,000 to 49,999 Hours of Delay

FIGURE 2-3. AIRPORTS EXCEEDING 20,000 HOURS OF ANNUAL AIRCRAFT DELAY IN 1997, ASSUMING NO CAPACITY IMPROVEMENTS

FUNDING OF POTENTIAL NEW HUB AIRPORTS

Mr. COUGHLIN. Last year we were told that you had identified about two dozen potential new hub airports. What funding priority do you give to these potential new hub airports?

[The information follows:]

When it becomes evident that a rapid increase in activity will result at these or other airports as the result of an airline decision to develop a hub, the FAA will give special consideration to funding any necessary capacity development.

WAYPORTS STUDY

Mr. COUGHLIN. One concept that was mentioned in your capacity needs study was "remote transfer airports." Last year, we were told that you would be making a recommendation on this concept by the end of calendar year 1989. What was or is your recommendation?

Admiral BUSEY. The so-called "remote transfer airports" study or wayports study was an in-house study that was created by Mr. Griggs' predecessor a couple of years ago. That in-house team reported out their findings to me about six weeks ago. I took no action on their recommendations, but turned it over to the capacity task force that I have created during the past year as one of the teams working under my Research and Development Advisory Committee—legally constituted advisory committee. I have turned it over to them and asked them to consider the recommendations of this team as part of their overall view of methods of improving capacity throughout the system.

Mr. LEHMAN. Mr. Coughlin.

Was the nature of the report that there was a possibility that these could be of some benefit, or was it negative?

Admiral BUSEY. The recommendations of that team indicated that they saw no place for a wayport concept in the air space system of today, but they clearly articulated the benefits and the negative aspects thereof. And I felt that it was best for all of the things they had reviewed to be considered in the overall context that I had the other team working on.

JOINT-USE AIRPORTS

Mr. COUGHLIN. It was also indicated last year that there were several military locations that you were looking at very closely. What potential do you believe there is for increasing capacity by taking over phased out military bases or by increasing the number of joint use agreements?

Mr. GRIGGS. There were 86 bases that were identified by the Carlucci Commission. And as you well know, the Secretary of Defense has come out with a list indicating new bases to be closed. The Admiral has appointed me as a single point of contact with DOD. We have started a whole new dialogue with Special Assistant to the Secretary, Ms. Lee Warner. So I am very, very hopeful when we come back next year we will have a much better plan, not only in hopefully influencing bases to be closed, but how better we can use them.

Mr. COUGHLIN. Last year you had 26 joint use agreements, 12 of which permitted virtually unrestricted use by civil aircraft. Has there been any increase in joint use agreements during the past year?

[The information follows:]

There are currently 22 joint use agreements in effect at domestic airfields. Ten of the agreements permit virtually unrestricted use of civil aircraft. The remainder set limits related to aircraft size, operating characteristics, types of operations, or number of flights. Those airfields with joint use agreements are listed below:

Mr. COUGHLIN. Please update for the record the listing of military airfields with joint use agreements that was included on page 335 of last year's hearing record.

[The information follows:]

LIST OF MILITARY AIRFIELDS WITH JOINT USE AGREEMENTS

NAVY

Agana NAS,[1] GQ.
Bermuda NAS,[1] BD.
Ford Island, HI.
Yuma MCAS,[1] AZ.

ARMY

Blackstone AAF,[1] VA.
Dillingham,[1] HI.
Forney AAF, MO.
Grayling AAF,[1] MI.
Libby AAF, AZ.
Sherman AAF,[1] KS.
Sparta/McCoy AAF,[1] WI.

AIR FORCE

Barter Island DS, AK.
Charleston AFB,[1] SC.
Dover AFB, DE.
Eglin AFB, FL.
Myrtle Beach AFB, SC.
Palmdale Plant 42, CA.
Point Lay DS, AK.
Rickenbacker ANGB, OH.
Sheppard AFB,[1] TX.
Travis AFB, CA.
Westover AFB, MA.

AIRPORT CAPACITY PROBLEMS

Mr. COUGHLIN. Please also update the listing of airports currently experiencing capacity problems and those with projected capacity problems by the year 2000, similar to what was included on page 336 of last year's hearing record.

[The information follows:]

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[1] Airfields with unrestricted use by civil aircraft.

Commercial Service Airports with Capacity Problems

Airports Currently Experiencing Capacity Problems As of Calendar Year 1987 1/

Atlanta, GA	Hartsfield
Burbank, CA	Burbank
Boston, MA	Logan
Chicago, IL	O'Hare
Dallas, TX	DFW Regional
Denver, CO	Stapleton
Houston, TX	Intercontinental
Las Vegas, NV	McCarran
Long Beach, CA	Dougherty Field
Los Angeles, CA	International
Newark, NJ	International
New York, NY	Kennedy
New York, NY	LaGuardia
Philadelphia, PA	International
Phoenix, AZ	Sky Harbor
Raleigh, NC	Raleigh-Durham
San Fransico, CA	International
Santa Anna, CA	John Wayne
St. Louis, MO	Lambert
Washington, DC	National

Other Airports with Projected Capacity Problems by the Year 2000 1/

Albuquerque, NM	International
Austin, TX	Robert Mueller
Baltimore, MD	International
Birmingham, AL	Municipal
Charlotte, NC	Douglas
Charleston, SC*	AFB, International
Chicago, IL	Midway
Cincinnati, OH	Greater Cincinnati
Cleveland, OH	Hopkins
Columbus, OH	Port Columbus
Dallas, TX	Love Field
Dayton, OH*	James M. Cox Int'l
Detroit, MI	Metropolitan
Ft. Lauderdale, FL	International
Honolulu, HI*	International
Houston, TX	Hobby
Indianapolis, IN	International
Islip, NY	Mac Arthur
Kansas City, MO	International
Louisville, KY	Standiford
Little Rock, AR	Adams Field
Memphis, TN	International
Miami, FL	International
Milwaukee, WI*	General Mitchell Fld.
Minneapolis, MN	Wold-Chamberlain
Nashville, TN	Metropolitan
New Orleans, LA	Moisant Field
Oakland, CA*	Metro Oakland Int'l
Ontario, CA*	International
Orlando, FL	International
Pittsburgh, PA	International
Portland, OR	International
Reno, NV	Cannon Int'l
Sacramento, CA	Metropolitan
Salt Lake City, UT	International
San Antonio, TX	International
San Diego, CA	Lindberg
San Jose, CA	Municipal
Sarasota, FL	Sarasota/Bradenton
Seattle, WA	Sea/Tac Int'l
Tampa, FL	International
Tucson, AZ	International
Tulsa, OK	International
Washington, DC	Dulles Int'l
West Palm Beach, FL	International
White Plains, NY	Westchester County
Windsor Locks, CT*	Bradley Int'l

1/ NOTE: This list was prepared by comparing current runway capacity to current and forecast demand. Seven airports marked with asterisks were added because of substantial air carrier operations or experienced aircraft delay over 5 minutes. Some of the airports listed may not become congested if their airfield capacity is increased or traffic does not increase to the forecast levels. Additional airports other than those listed may become congested because of terminal area, airspace limitations, unforeseen growth in traffic due to airlines' hubbing decisions. There are circumstances where a certain component of an airport (i.e. terminal) may cause delays where there is adequate runway capacity on the airside.

AIRPORT PEAK PRICING

Mr. COUGHLIN. It has been argued that airlines generally do not pay extra for peak-hour use of congested airports and that the taxes paid for a particular flight are not related to the cost of providing air traffic control services for that flight. The Secretary's policy indicates that you intend to encourage peak-period or congestion pricing to ensure the most efficient use of transportation facilities. What actions do you plan to take to implement this policy?

Mr. McDANIEL. Mr. Chairman, we do not believe that peak-period pricing is a substitute for expansion of capacity in the system, but in appropriate situations might be useful in evening out the traffic. We are evaluating the conditions under which that might appropriately be used.

Mr. LEHMAN. Mr. Coughlin.

Mr. COUGHLIN. Yes, Mr. Chairman.

Mr. LEHMAN. Would the FAA have any control over that?

Admiral BUSEY. It would be up to the airport operators themselves. We would not get involved in collecting those or mandating them.

Mr. LEHMAN. But you would have some control over it indirectly by providing the air traffic control services.

Admiral BUSEY. Yes.

Mr. LEHMAN. Thank you.

PRIVATIZATION OF AIRPORTS

Mr. COUGHLIN. Yes, sir. There has been some interest in privatization of airports. What is your position on this issue? Under what conditions would you support the sale of airports to private entities?

Admiral BUSEY. We have an open mind in the FAA to the potential for privatization of airports, Mr. Coughlin. And having said that, we are also proceeding very cautiously. I want to make sure that we thoroughly research the issue; learn everything we can about the pros and cons, the benefits and the detractors from privatization before we recommend to the Secretary of Transportation that he undertake a policy position as it pertains to privatization. But it looks like some forms of privatization offer the benefits of increasing capacity at local airports.

Of course, it is not anything new, but we have so many different categories of airports here in the country with deed restrictions, et cetera that I want to make sure that as we go forward with that recommendation that we are able to cover all of these types of categories. Therefore, we are going very slowly, making sure that we investigate all the legal ramifications before we come down with the policy.

PHILADELPHIA INTERNATIONAL AIRPORT

Mr. COUGHLIN. Before we recess for lunch, might I ask a couple of parochial questions, Mr. Chairman? The Philadelphia International Airport is now receiving discretionary funds as they are undertaking the first major facility expansion since construction of the terminal buildings in the early 1970s. They are looking for about $23.5 million this year. Can you tell me how high Philadelphia ranks on your project selection list?

Admiral BUSEY. Len?

Mr. GRIGGS. I have talked with the airport director at Philadelphia. I have known him for a great number of years, and we are very much interested in the Philadelphia project. As you well know, if you are referring to a specific LOI or that kind of thing, the Congress mandates that an LOI can only be issued "for an airport that will contribute to the national capacity." I am very curious about what I have seen at Philadelphia. I am aware of your expansion plans, and we are very much interested and will be as supportive as we can. It will be evaluated along with every airport, sir.

Mr. COUGHLIN. Do we have a high ranking on your priority list?

Mr. GRIGGS. You are very, very high. I think Philadelphia is an extraordinarily important airport to this nation. And I think that what we can do to help you all for the enhancement of your capacity, we will certainly do.

[The information follows:]

Philadelphia International ranks 22nd in primary commercial service airports receiving AIP discretionary funding from fiscal year 1982 through 1989. We expect to provide additional discretionary funding in fiscal year 1990.

BOZEMAN, MT TOWER

Mr. COUGHLIN. On behalf of our colleague, Ron Marlenee, I had asked the FAA to consider the feasibility of establishing a tower at Gallatin Field in Bozeman, Montana and report its findings. On February 20, 1990, you promised the report in March. You have consulted with the staff a couple of times. It is now April. What has happened to our report?

Admiral BUSEY. We are late, and I believe I have been advised—somebody is going to have to help me here—that the report that we are late on providing you is in my top level management for coordination. It has not come to me yet. We will turn up the burner and see if I cannot get it to you very shortly, sir.

Mr. COUGHLIN. I would appreciate that. Thank you, Mr. Chairman.

Mr. LEHMAN. Thank you very much, Mr. Coughlin. 2:00?

Mr. COUGHLIN. Yes, sir.

Mr. LEHMAN. We shall recess until 2:00.

LETTER OF INTENT REQUESTS

Mr. LEHMAN. We will reconvene. You are proposing a $351 million letter of intent (LOI) for the new Denver International. Your request refers to another $2 to $3 billion in potential LOI demands. What are the larger LOI requests that you have received or expect to receive?

Admiral BUSEY. Mr. Griggs.

Mr. GRIGGS. Yes, sir. As the Chairman is very much aware of, every time we send an LOI up to Congress, we also attach a list showing the outstanding LOIs which have already been approved. The outstanding LOI list is to clarify and I think make it a little clearer to you all, that the LOIs that are out right now to include Denver are something in the neighborhood of about $822 million which includes discretionary and entitlement money.

The LOIs that we anticipate or are looking at, and we'll provide a list for the record as per the second question, is around $2 billion Federal share, to include airports from Burbank to Dulles and National Airport. I'll provide that list for the record.

[The information follows:]

DATE 05/03/1990 AIP LETTERS OF INTENT --- LOI COMMITMENTS BY FISCAL YEAR ($ THOUSANDS)

LOCATION DATE/LOCID	1988		1989		1990		1991		1992	
	ENT	DIS*	ENT	DIS	ENT	DIS	ENT	DIS	ENT	DIS
PRIMARY AIRPORTS										
JOHN WAYNE/ORANGE COUN 09/27/1988 SNA	0.0	0.0	0.0	3,750.0	0.0	0.0	0.0	3,250.0	0.0	3,191.5
ORLANDO INTERNATIONAL 09/23/1988 MCO	0.0	4,690.0	373.0	4,690.0	2,763.8	0.0	5,849.2	4,690.0	5,806.0	4,688.0
INDIANAPOLIS INTERNATI 05/02/1988 IND	0.0	8,000.0	0.0	7,000.0	0.0	0.0	2,000.0	2,000.0	2,000.0	1,860.0
GREATER CINCINNATI INT 08/02/1988 CVG	0.0	8,000.0	4,056.3	0.0	4,300.4	8,000.0	3,155.0	4,000.0	1,108.4	4,000.0
KANSAS CITY INTERNATIO 06/08/1989 MCI	0.0	0.0	0.0	0.0	4,664.4	400.0	4,653.5	2,000.0	4,635.1	2,000.0
MC CARRAN INTERNATIONA 06/08/1989 LAS	0.0	0.0	0.0	6,000.0	6,500.0	0.0	6,500.0	0.0	6,500.0	4,000.0
NASHVILLE METROPOLITAN 04/25/1988 BNA	0.0	7,000.0	3,505.7	6,000.0	3,683.7	0.0	2,850.0	3,000.0	1,360.7	3,000.0
NEW 09/28/1988 AUSN	0.0	0.0	0.0	15,000.0	0.0	5,000.0	3,500.0	10,000.0	3,500.0	10,000.0
DALLAS/FORT WORTH INTE 12/20/1988 DFW	0.0	0.0	0.0	0.0	0.0	12,500.0	0.0	12,500.0	0.0	12,500.0
TOTAL PRIMARY	0.0	27,690.0	7,935.0	42,440.0	21,912.3	25,900.0	28,507.7	41,440.0	24,910.1	45,239.5

*END OF FISCAL YEAR 1988 DISCRETIONARY FUNDING USED TO ADVANCE FUND FISCAL YEAR 1989 PORTIONS OF LOI'S

DATE 05/03/1990 AIP LETTERS OF INTENT ---- LOI COMMITMENTS BY FISCAL YEAR ($ THOUSANDS) (CONT)

	1993		1994		1995		1996		1997	
LOCID	ENT	DIS	ENT	DIS	ENT	DIS	ENT	DIS	ENT	DIS
SNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IND	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CVG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MCI	0.0	2,000.0	0.0	2,000.0	0.0	0.0	0.0	0.0	0.0	0.0
LAS	0.0	4,000.0	0.0	4,000.0	0.0	4,500.0	0.0	0.0	0.0	0.0
BNA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AUSN	0.0	10,000.0	0.0	10,000.0	0.0	10,000.0	0.0	5,000.0	0.0	5,000.0
DFW	0.0	12,500.0	0.0	12,500.0	0.0	12,500.0	0.0	12,500.0	0.0	12,500.0
TOT PRI	0.0	28,500.0	0.0	28,500.0	0.0	27,000.0	0.0	17,500.0	0.0	17,500.0

DATE 05/07/1990 AIP LETTERS OF INTENT --- LOI COMMITMENTS BY FISCAL YEAR ($ THOUSANDS) (CONT)

LOCID	1998 ENT	1998 DIS	1999 ENT	1999 DIS	TOTAL ENT	TOTAL DIS	TOTAL
SNA	0.0	0.0	0.0	0.0	0.0	10,191.5	10,191.5
MCO	0.0	0.0	0.0	0.0	14,792.0	18,758.0	33,550.0
IND	0.0	0.0	0.0	0.0	4,000.0	18,860.0	22,860.0
CVG	0.0	0.0	0.0	0.0	12,620.1	24,000.0	36,620.1
MCI	0.0	0.0	0.0	0.0	13,953.0	8,400.0	22,353.0
LAS	0.0	0.0	0.0	0.0	19,500.0	22,500.0	42,000.0
BNA	0.0	0.0	0.0	0.0	11,400.0	19,000.0	30,400.0
AUSN	0.0	0.0	0.0	0.0	7,000.0	80,000.0	87,000.0
DFW	0.0	0.0	0.0	0.0	0.0	100,000.0	100,000.0
TOT PRI	0.0	0.0	0.0	0.0	83,265.1	301,709.5	384,974.6

DATE 05/03/1990 AIP LETTERS OF INTENT ---- LOI COMMITMENTS BY FISCAL YEAR ($ THOUSANDS)

LOCATION DATE/LOCID	1988		1989		1990		1991		1992	
	ENT	DIS*	ENT	DIS	ENT	DIS	ENT	DIS	ENT	DIS
RELIEVER AIRPORTS										
HENRY COUNTY-MORRIS FI 07/18/1989 4A7	0.0	0.0	0.0	1,500.0	0.0	1,500.0	0.0	1,613.7	0.0	0.0
FALCON FIELD 05/18/1988 2A9	0.0	0.0	0.0	2,126.7	0.0	2,126.7	0.0	2,126.7	0.0	0.0
DU PAGE COUNTY 09/02/1988 DPA	0.0	0.0	0.0	10,000.0	0.0	9,000.0	0.0	9,000.0	0.0	9,000.0
STEWART INTERNATIONAL 05/19/1989 SWF	0.0	0.0	0.0	0.0	0.0	3,000.0	0.0	2,821.7	0.0	0.0
TOTAL RELIEVER	0.0	0.0	0.0	13,626.7	0.0	15,626.7	0.0	15,562.1	0.0	9,000.0
GRAND TOTAL	0.0	27,690.0	7,935.0	56,066.7	21,912.3	41,526.7	28,507.7	57,002.1	24,910.1	54,239.5

*END OF FISCAL YEAR 1988 DISCRETIONARY FUNDING USED TO ADVANCE FUND FISCAL YEAR 1989 PORTIONS OF LOI'S

DATE 05/03/1990 AIP LETTERS OF INTENT ---- LOI COMMITMENTS BY FISCAL YEAR ($ THOUSANDS) (CONT)

LOCID	1993		1994		1995		1996		1997	
	ENT	DIS	ENT	DIS	ENT	DIS	ENT	DIS	ENT	DIS
4A7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2A9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DPA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SWF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOT REL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GRAND TOT	0.0	28,500.0	0.0	28,500.0	0.0	27,000.0	0.0	17,500.0	0.0	17,500.0

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DATE 03/03/1990           AIP LETTERS OF INTENT ---- LOI COMMITMENTS BY FISCAL YEAR       ($ THOUSANDS)  (CONT)

          --------1998---------  ----------1999--  ----  ------------TOTAL------------------
LOCID      ENT          DIS       ENT         DIS        ENT       DIS        TOTAL



 4A7        0.0         0.0       0.0         0.0        0.0    4,613.7    4,613.7

 2A9        0.0         0.0       0.0         0.0        0.0    6,380.0    6,380.0

 DPA        0.0         0.0       0.0         0.0        0.0   37,000.0   37,000.0

 5WF        0.0         0.0       0.0         0.0        0.0    5,821.7    5,821.7

 TOT REL    0.0         0.0       0.0         0.0        0.0   53,815.4   53,815.4

GRAND TOT   0.0         0.0       0.0         0.0   83,265.1  355,525.0  438,790.0


TOTALS MAY NOT AGREE WITH DETAIL DUE TO ROUNDING
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MAJOR LETTERS OF INTENT

Mr. LEHMAN. What are the major LOIs?

Mr. GRIGGS. The major LOIs that we anticipate?

Mr. LEHMAN. Yes.

Mr. GRIGGS. We're looking at Detroit, for example, $193 million. We're looking at St. Louis, for something in the neighborhood of $300 million plus. We're looking at Philadelphia for $122 to $173 million. We're looking at Pittsburgh for $33 million, which we are currently in the process of working. We're looking at Dulles and Washington National for $270 million. Orlando for $28 million. Burbank, California for $38 million. Louisville, Kentucky for around $300 million. And northern Illinois-Indiana, the third airport for Chicago, something in the neighborhood of $500 million.

NEW CHICAGO AIRPORT

Mr. LEHMAN. Most of these are expansions of existing airports, apparently.

Mr. GRIGGS. That is correct, with the exception, sir, of the northern Illinois-Indiana Chicago airport, which would be a new facility.

Mr. LEHMAN. Nothing for Miami?

Mr. GRIGGS. Yes, sir. If and when Miami comes in, sir.

POTENTIAL LETTERS OF INTENT

Mr. LEHMAN. Please provide a complete list of your $2 to $3 billion in potential LOI demands indicating whether the request has been received.

[The information follows:]

Location	Amount (millions)	Request received
Detroit Metropolitan	$185	Y
Washington Dulles/National	270	Y
Orlando	28	Y
Philadelphia	122	N
Burbank CA	38	N
Louisville KY	300	N
St. Louis Lambert	350	N
New York/New Jersey Port Auth.	1000	Y
NE Illinois/NW Indiana	500	N

Mr. LEHMAN. So far, they haven't made any requests.

Mr. GRIGGS. No, they have not.

Mr. LEHMAN. They're talking about a new airport there, but it's still just talk.

As is stated in the letter, the demand exceeds funds available. If the Denver LOI were to be issued, which of these other requests and potential requests would not receive an LOI?

Mr. GRIGGS. All requests for priority projects will be considered, sir. If you will recall, in the Denver request, they did not get what they wanted. We also stretched out the yearly payments and so each project, as the Congress has mandated, would be acted upon and judged based upon the contribution to the national capacity.

DISCRETIONARY FUNDS FOR AIRPORT CAPACITY

Mr. **LEHMAN**. According to your information, you have currently outstanding letters of intent for primary airports amounting to nearly $70 million in fiscal year 1991 funds, of which $41 million is discretionary. Under your proposal, Denver would receive $25 million in discretionary funds. Under your proposed fiscal year 1991 budget, what amounts of discretionary funds would be available for capacity projects at primary airports?

Mr. **GRIGGS**. $195.8 million, sir.

Mr. **LEHMAN**. How much would be available for this purpose if your $100 million capacity set-aside is not approved?

Mr. **GRIGGS**. $142.3 million, sir.

LARGE HUB AIRPORT FUNDING

Mr. **LEHMAN**. Am I correct that over the past five fiscal years, less than 50 percent of your primary airport discretionary funds went to large hubs?

Mr. **GRIGGS**. For the past two years, for example, 53.3 percent have gone to the major hubs. So it really has been more than 50 percent, sir.

AIRPORT FORMULA GRANTS

Mr. **LEHMAN**. In your budget justification, you show a $120 million carryover from formula grants. How are these funds distributed?

Mr. **GRIGGS**. Of the $120 million carryover, we would anticipate that roughly $20 million will be spent to meet legislative minimums for reliever and commercial service, and discretionary funds for the noise program. Of the remaining $100 million, $75 million would be spent on capacity, safety, security, noise projects and $25 million on other high priority projects.

LETTERS OF INTENT LIMITATIONS

Mr. **LEHMAN**. In that respect, we were told that your policy was to limit letters of intent to 50 percent of your total capacity, safety, security and noise discretionary funds. Is that still your policy? If so, how much is that in fiscal 1991?

Mr. **GRIGGS**. That is correct, sir. And that equates to roughly $98 million.

DENVER AIRPORT TRAFFIC PROJECTIONS

Mr. **LEHMAN**. There have been reports that indicate Denver has lost traffic for the last several years with a 7 percent drop last year. Are these traffic levels consistent with your projections?

Mr. **GRIGGS**. No, they are not, sir. And as a matter of fact, the major carriers reduced their operations approximately 20 percent. However, since January of this year, when traffic was level with the previous January and February, February of this year showed about a 2 percent increase. And with passenger increases that are being reported by Delta and Northwest—as a matter of fact, United has announced that they are going to increase their flights from 178 to 188 per day—we expect long term and steady growth to resume at Denver.

Mr. **Lehman**. If traffic levels drop further, is there a point at which you would reassess the scope of the project, such as the plan to have five runways on opening day?

Mr. **Griggs**. This plan will remain, sir. There will be five runways at opening day.

Mr. **Lehman**. Actually, you're not anticipating it no matter what the traffic levels were, but right now you're not anticipating traffic levels to drop apparently. Take the worst case, like a big drop—would you reassess then? Like a 25 to 30, 40 percent drop?

Mr. **Griggs**. If one were to make that sort of assumption, I think you would have to analyze it nationally. You know, they've already started the grading project and they hope to have this airport open in 1993 with five runways. If Denver, or somebody who's been in the airport business for ten years, if they were to suffer a 50 percent drop, we would have sort of a national catastrophe on our hands because it would permeate all across the land.

Mr. **Lehman**. It wouldn't be just Denver.

Mr. **Griggs**. No, sir, it would not.

Mr. **Lehman**. If the traffic projections are correct and the passenger levels do increase as anticipated, would the amount of apportioned funds for any year exceed the levels assumed in the proposed LOI? If so, would you reduce the amount of discretionary funds in that year?

Mr. **Griggs**. The maximum entitlement funds that any airport can receive under the formula, sir, is $16 million per year. If, in fact, Denver entitlements would rise to the level to where they would be eligible for $16 million of entitlements, then the amount of discretionary would in fact be reduced. Let me give you an example: Say in 1995 when we are projected to give them $14 million of entitlements and $31 million of discretionary, if that became 16 versus 14, then resultingly the discretionary would be reduced.

LOCAL RESPONSIBILITY FOR COST OVERRUNS

Mr. **Lehman**. Most construction projects cost more than originally estimated. In this regard, one of the issues last year's Conference Report directed you to consider was making state and local entities financially responsible for cost overruns. What is your position on this matter? What assurance can you provide us that you will not request funding beyond the levels contained in the proposed letter of intent?

Mr. **Griggs**. We do not anticipate at all increasing the discretionary funding to the proposed LOI beyond that which we have promised. So therefore it would be the responsibility of Denver and the County of Denver to meet those obligations.

Mr. **Lehman**. Do you have something from them that this is going to be the end of the road? Will that be part of the process of the letter of intent?

Mr. **Griggs**. I think the LOI is pretty self-explanatory, and it's really the grant agreement that sets the level, and this would be the FAA policy, that we would not go beyond what was requested.

LEGAL RAMIFICATIONS—LOI'S

Mr. LEHMAN. We have full funding contracts from urban mass transit that said this much and no more, and I didn't know whether that would be applicable to a letter of intent in the FAA situation.

Mr. GRIGGS. Well, the LOI is just that—it is a letter of intent. It is not a binding legal document. And the grant becomes a legal document. It would be the grant that would enforce the intent of the LOI, sir.

REPAYMENTS OF EXPENDED GRANTS

Mr. LEHMAN. Does current law provide for repayment of expended grant funds if, for some reason the project is not completed?

Mr. GRIGGS. Really, this is somewhat of a hypothetical question, Mr. Chairman, in that——

Mr. LEHMAN. It's hypothetical I think.

Mr. GRIGGS. I understand that. First, it would be our position to take all reasonable actions to make sure the project was in fact completed. If not completed we would, among other things, seek recovery of grant funds.

Mr. LEHMAN. That has been included in the full funding contracts from UMTA, as I imagine some of you may know. We haven't had to exercise it, but it's always a way to see that the grantee fulfills his obligations.

Mr. GRIGGS. The Airport Improvement Act does not contain that specific language. However, the grant agreement would be the formal contract by which we could come back on.

Mr. LEHMAN. Mr. Coughlin?

Mr. COUGHLIN. No questions at this time, Mr. Chairman.

Mr. LEHMAN. Mr. Carr?

Mr. CARR. None right now.

INSPECTOR GENERAL REPORTS

Mr. LEHMAN. We turn now to the IG reports. Last May, the IG reported that delays in starting construction on airport grant projects have resulted in significant cost increases. The IG recommended that you formalize and implement the policy requiring sponsors to begin construction no later than nine months after the grant award. Has this policy been implemented? And if so, in what way?

Admiral BUSEY. Mr. Griggs?

Mr. GRIGGS. Yes, we will have issued instructions on this.

Admiral BUSEY. This is the Inspector General reports for implementing policy requiring sponsors to begin construction in a speedy way.

Mr. GRIGGS. We have issued guidance to our regions that they are to review the project scheduling that sponsors are proposing, and generally we would delay grant awards until the sponsor is prepared to start. We are taking steps to make sure projects do start in a reasonable time. We would hold to a minimum the number of grants awarded based on preliminary plans and specifications and make such awards only on an exceptional basis. We have found this practice contributes to delays. We also will monitor project progress throughout and take follow-up action if sponsors have not begun projects within six months of grant award.

Mr. LEHMAN. The IG also reported that a number of your regions are not enforcing applicable standards for airport construction materials. Of the $44.5 million in construction projects reviewed, according to the IG, 85 percent of the accepted pavements either were insufficiently tested or did not conform to specific tolerances. One of the major recommendations made by the IG is that you review each proposed sponsor construction contract to ensure that all applicable FAA standards are included. What types of procedures did you use that permitted 85 percent of the pavement to be accepted without proper testing and have you fully implemented the IG recommendation to review each proposed sponsor construction project?

Mr. GRIGGS. Shortly after I took the job, sir, I met with the IG and we went through this report. This was an ongoing analysis of FAA contracts over the past three or four years. Realizing the possible severity of this, we took immediate action and met with the IG and we have put out to the field and to all the regions the following guidelines—and this will be part of all the grant agreements that we let with any airport from now on, and I will provide a copy for the record of the grant conditions we're placing on it.

[The information follows:]

A program guidance letter on pavement quality control was issued in March 1990, and a copy is enclosed.

U.S. Department
of Transportation
Federal Aviation
Administration

Memorandum

Subject: Program Guidance Letter 90-2

Date: 29 MAR 1990

From: Manager, Grants-in-Aid Division, APP-500

Reply to Attn of:

To: PGL Distribution List

90-2.1 Pavement Quality Control - Ed Williams (267-8809).

In response to an OIG Audit on Airport Construction Materials Conformance, FAA has agreed to require certain additional measures to ensure improved adherence to quality control procedures. One of these measures is to require sponsors to develop and carry out a construction management plan on major airport paving projects. The attached special condition should be included in all grants which contain paving work estimated in excess of $250,000. This procedure is effective immediately for all new grants.

Lowell H. Johnson

Attachment

PAVEMENT PROJECTS

The sponsor agrees to perform the following:

1. Furnish a construction management program to FAA prior to the start of construction which shall detail the measures and procedures to be used to comply with the quality control provisions of the construction contract, including, but not limited to, all quality control provisions and tests required by the Federal specifications. The program shall include as a minimum:

a. The name of the person representing the sponsor who has overall responsibility for contract administration for the project and the authority to take necessary actions to comply with the contract.

b. Names of testing laboratories and consulting engineer firms with quality control responsibilities on the project, together with a description of the services to be provided.

c. Procedures for the testing laboratories to meet the requirements of the applicable American Society of Testing Material's standards referenced in the contract specifications.

d. Qualifications of engineering supervision and construction inspection personnel.

e. A listing of all tests required by the contract specifications, including the type and frequency of tests to be taken, the method of sampling, the applicable test standard, and the acceptance criteria or tolerances permitted for each type of test.

f. Procedures for ensuring that the tests are taken in accordance with the program, that they are documented daily, that the proper corrective actions, where necessary, are undertaken, and that the quantity of materials used is adequate.

2. Submit at completion of the project, a final test and quality control report documenting the results of all tests performed, highlighting those tests that failed or did not meet the applicable test standard. The report shall include the pay reductions applied and reasons for accepting any out-of-tolerance material."

SECTION 3. PRIORITY SYSTEM – GENERAL

320. GENERAL.

a. Because the demand for discretionary funds exceeds the amount available, a priority system is to used to evaluate projects on the basis of standardized criteria. Projects are then ranked according to their national priority to ensure that discretionary funds are used more effectively. (Although the priority system is generally not used in approving projects for entitlement funding, field offices should encourage sponsors to use such funds for the highest priority projects under consideration at the airport.) The priority system is designed to facilitate routine prioritization for the bulk of projects while allowing exceptions to handle special projects and those hard to classify. Under this system, projects are favored which best carry out the purpose of the Act with emphasis on those which improve safety and assure the integrity of the system.

b. Use of the system yields an alpha–numeric designation for each work item where the number is derived from the type of work and the letter from the type of location.

c. For projects involving the use of capacity discretionary funds, see paragraph 330.

321. TYPE OF WORK – DEVELOPMENT CATEGORIES. Airport development work items are divided into seven categories. These are:

a. Special Programs. Items required by rule (such as fire/rescue vehicles and their protective buildings and security equipment); congressionally mandated runway grooving, friction treatment, and distance–to–go signs of all primary and secondary runways at commercial service airports; airport hazard removal or marking; vertical visual guidance systems on all primary runways and runway lights, taxiway lighting and sign system, and marking for all commercial service airports. A congressionally mandated item may be deferred until other related construction is accomplished at a location. Grooving, for example, would be accomplished in conjunction with a forthcoming runway reconstruction project.

b. Reconstruction. Development required to preserve, repair, or restore (excluding ineligible routine maintenance) the functional integrity of the landing area. Typical projects include rehabilitation of pavements, including seal coating for increased skid resistance, and replacement or rehabilitation of lighting systems. Pavement strengthening is generally excluded as most development of this type falls into the "Upgrade" category.

c. Standards.

(1) Development to bring existing airports up to recommended standards based on the current design category as listed in the NPIAS. For example, where the design length for a runway at a BU airport is 4,000 feet but only 3,000 feet exists, a 1,000–foot extension project is shown as "Standards" development. Capacity development is excluded, as is development for the purpose of accommodating larger aircraft types not included within the current design category of the airport.

(2) Standards development includes: runway surface treatment at other than commercial service airports; runway safety areas; clearing of objects included in paragraph 17 of AC 150/5300–4; land and other items for noise compatibility; lighting existing pavements; lengthening, widening, and strengthening runways and taxiways (to current standards); seal coats and other repair of airport pavement; land for runway protection zones; taxiways to support existing runways; runway reorientation and threshold displacement projects; weather reporting equipment; electronic navaids; snow removal equipment (including runway condition sensors); friction measuring devices; maintenance facilities for ARFF equipment; and ARFF equipment for airports serving scheduled air carrier aircraft with 21 seats or more.

d. Upgrade.

(1) Development which provides for accommodating larger (more critical) aircraft types and/or longer nonstop routes. For example, where the existing length of a runway serving commercial carriers is based on the use of a specific critical aircraft, a runway extension to accommodate a more critical aircraft is considered as "Upgrade." This category covers items intended to provide for future changes in the use of the airport as contrasted with "Standards" development which is oriented towards current deficiencies.

(2) Typical development in this category includes runway extensions and runway and taxiway widening and strengthening (for higher projected aircraft weight). Development excluded would be that required for capacity, i.e., changes in volume rather than type.

e. Capacity. Development required to increase system capacity by increasing airport capacity beyond its present designed use (standards). Typical development includes new runways and apron and terminal expansion. In cases where expansion is needed based on current delay and congestion, the costs are considered as "Capacity" expansion rather than "Standards." Development based solely on accommodating aircraft with larger seating capacity is included in the "Upgrade" category unless other related factors place the project in this category.

f. New Airports – Capacity. Intended for all new reliever airports and new commercial service airports which are constructed to increase metropolitan system capacity.

g. New Airports – Community. Used for any new airport which will be the sole airport serving a community. It will normally be a general aviation airport meeting community needs for an adequate airport. A small number of commercial service (new or replacement) airports outside of the large metropolitan areas will also be included.

322. TYPE OF WORK – PLANNING CATEGORIES. There are three types of eligible planning categories – airport master planning, noise compatibility planning, and system planning:

a. The type of work for master planning and noise compatibility planning is divided into five categories:

(1) Initial study for an existing airport;

(2) Study for a new airport;

(3) Complete/continue phased projects;

(4) Periodic update; and

(5) Supplemental grant for ongoing study.

b. The type of work for system planning is divided into three categories:

(1) Initial plan;

(2) Continuous planning; and

(3) Supplemental grant for ongoing study.

323. TYPE OF LOCATION – AIRPORT TYPE. All projects except for system planning are associated with a particular airport type. For development projects, these are assigned a single letter code. These types are:

a. Primary in large/medium hub and its relievers; noncommercial with 100 or more based aircraft; or 40,000 or above itinerant operations (W);

b. Primary in large/medium hub and its relievers; noncommercial with 50 or more based aircraft; or 20,000 to 40,000 itinerant operations (X);

c. Commercial service other than primary; noncommercial with 20 or more based aircraft; or 8,000 to 20,000 itinerant operations (Y);

d. Noncommercial with less than 20 based aircraft or less than 8,000 itinerant operations (Z).

324. TYPE OF LOCATION – AREA TYPE. For system planning, the areas are divided into three categories:

a. State or region/metropolitan plan for area with primary airport in large hub;

b. Region/metropolitan plan for area with primary airport outside large hub; and

c. Region/metropolitan plan for area without primary airport.

325. PRIORITY SYSTEM MATRICES. From the four categories described in paragraphs 321–324, two matrices have been constructed. Figure 3–1 is the matrix for all but system planning projects; Figure 3–2 is for system planning projects. These matrices contain the priority system values to be used.

326. ADD–ON FACTORS. For development projects within categories B – G only, add–on factors are used to further refine priorities within the same development category. These add–on factors are listed on the bottom of Figure 3–1.

327. BASIC RULES.

a. The lower the number, the better the priority, i.e., a priority of 10W is higher priority than a 12W. The letter establishes priority only when appended to two projects with the same number and "W" holds highest priority. Thus a 10W would be funded before a 10X.

b. An airport's use or role, rather than its type, may be considered during prioritization. A commercial service airport with few commercial flights but with a high number of general aviation based aircraft or a high itinerant operations count may qualify for a higher priority as a general aviation airport if the development is primarily for general aviation use.

c. Any work that is not identified in the table will receive the same priority as an associated identified development item. Accordingly, land, which is not shown in the table, will be prioritized in accordance with its planned use, i.e., land for a primary runway extension will receive the same priority as the primary runway. Items needed for runway use such as wind indicators, visual aids, and seal coating, receive the same priority as the associated runway. Lighting of an apron receives the same priority as the associated apron, etc.

d. If there is a need to distinguish between locations holding the same priority, do so on the basis of enplanements or itinerant traffic count. The traffic data may be included in remarks accompanying a listing.

e. The priority system is for items to be programmed in a current year. Any prioritized listing of items for a future year should be listed and prioritized with other items planned for that year. When it is necessary in a current year to acquire land for future development, it will receive the priority of the item it will eventually be used for. Discretionary funding for such land banking is normally only approved if sufficient funding exists for more urgent development in a region.

f. For both F & G categories: The add–on factor in Figure 3–1 identified as "Fundamental Configuration" is used for initial prioritization of new airports. It describes initial development needed to produce a usable new airport and may include a runway, taxiway, apron, and access and service roads. The Fundamental Configuration of new airports to replace existing airports may receive the same priority number as the airport being replaced. For example, the replacement may be viewed as "standards" development where the existing airport cannot be improved to meet standards. In such a case, the higher priority number opposite standards may be used but the category letter that precedes the number should be F or G, as appropriate.

328. USE OF TABLES.

a. Development.

(1) To obtain the development priority, use Figure 3-1 to arrive at a one or two digit plus letter designator. For example, a project to reconstruct an apron at San Antonio International (a primary airport in a large or medium hub) has a priority of 4W. To arrive at this, use the digit "2" to the right of the "reconstruction" category in the column shown for large or medium hub primary airports and add the numerical value taken from the add-on factors which show a "2" for aprons. The letter designator "W" is taken from the airport type.

(2) Another example: the priority for a new reliever airport, estimated to serve 40 aircraft and needed to resolve a capacity problem in the San Antonio area is 6W. A "3" is taken from Figure 3-1 opposite the "new airport capacity" category and added to a "3" which comes from the ranking for fundamental configuration (initial development) in the add-on factors. The letter "W" is from the airport type.

(3) The letters A through G for the development categories (Reconstruct, Standards, etc.) on the left of Figure 3-1 are not prioritized. They must, however, be shown for computer tracking of development dollars by category. Thus, a full designator for the priority 4W in the first example would be B4W while the second example would be shown as F6W on forms designed for computer use.

(4) If capacity discretionary funds are to be used, an additional letter C is to be added. For the second example above, if capacity discretionary funds are used, the final designator would be FC6W.

b. Planning. To obtain a priority for planning, use Figure 3-1 for airport master planning and noise compatibility planning. Use Figure 3-2 for system planning. Couple the type of study with the airport or area type to develop the priority. The computer entry for planning priorities will always be a category letter "P" followed by a single digit priority number. Example: a periodic update of a Master Plan study at San Antonio International Airport is priority 2 and will be shown as P2 on any computer listings.

329. EXCEPTIONS TO THE PRIORITY SYSTEM.

a. Raised Priority. There will be a few instances where we must fund projects that ordinarily would not hold sufficient priority for funding. To identify these, add an "R" (for "raised" priority) to the priority number developed from the figures. An explanation of why these locations should be programmed must be included for all "R" locations shown in any priority listings. Example: although new community airport at a low activity location (less than 20 based aircraft and less than 800 itinerant operations) without commercial service gets a G15Z from Figure 3-1, the airport is needed to assure community access to distant medical facilities. If a project is given special handling, it is assigned an "R" to identify it. The full computer entry for this airport's fundamental configuration will read: G15ZR. An explanation of why the work was assigned an "R" must be included in the project files.

b. Lowered Priority. It is also permissible to lower as well as raise priorities. This may be done by adding an "L" (for "lowered" priority) to the priority developed from the figures, and an explanation for the lowered priority should be included in the project files. A lowered priority might be given to a project that is not as well justified as another of the same priority. For example, two runway extensions may hold the same priority but one may be justified on the basis of 700 operations while the other is justified on the basis of 1,400 itinerant operations. An "L" could be assigned to the location with 700 operations if there is reason for not assigning an "R" to the other location.

330. CAPACITY DISCRETIONARY CRITERIA. Section 507(c) of the Airport and Airway Improvement Act of 1982 (AAIA), as amended, authorizes the Secretary to make grants to primary airports and their relievers from discretionary funds for the purpose of preserving and enhancing airport capacity. The FAA has developed project selection criteria to help make decisions on the relative priority of competing capacity projects proposed during the fiscal year. Under this system, projects are favored which best preserve and enhance capacity in the national system of airports and whose sponsors have demonstrated the required commitment to capacity enhancement. See Appendix 25.

331-349. RESERVED.

AIRPORT TYPE AND CODE

	Primary in Large or Medium Hub # and its Relievers or Noncommercial 100 or more based Aircraft or 40,000 or More Itinerant Operations	Primary Outside Large/Medium Hub and its Relievers or Noncommercial 50+ Based Aircraft or 20–40,000 Itinerant Operations	Commercial Service Other than Primary or Noncommercial 20+ Based Aircraft or 8–20,000 Itinerant Operations	Noncommercial Less than 20 Based Aircraft or Less than 8000 Itinerant Operations
	(W)	(X)	(Y)	(Z)
PLANNING CATEGORIES, MASTER PLAN, NOISE COMPATIBILITY PLAN				
–Initial study for existing airport	1	2	3	4
–Study for new airport	1	2	3	4
–Complete/continue phased projects	1	2	3	3
–Periodic update	2	3	4	4
–Supplemental grant for ongoing study	2	2	2	2
DEVELOPMENT CATEGORIES				
A. Special PGMS	1	1	1	1
B. Reconstruction	2	2	3	7
C. Standards	2	3	4	9
D. Upgrade	3	4	5	10
E. Capacity	3	4	5	12
F. New Airport Capacity	3	5	7	12
G. New Airport Community	5	6	7	12

ADD–ON FACTORS (No Add–on Factors for SPECIAL PROGRAMS):
+1 = Primary landing surface and associated taxiway, approaches
+2 = Aprons, secondary landing surface and associated taxiway, approaches
+3 = Fundamental configuration or for noise compatibility in DNL 75 dB
+4 = CFR maintenance facilities, electronic navaids, AWOS, snow removal equipment and snow removal equipment storage buildings
+5 = Primary access roads, noise compatibility (DNL 65–74 dB), terminal buildings
+6 = Snow abrasive/chemical storage buildings
+7 = Other (such as service roads, secondary access roads, noise compatibility projects outside DNL 65 dB, fencing, etc.)

Figure 3–1. Priority System Matrix for Airport Development, Noise Compatibility Development, Master Planning, and Noise Compatibility Planning

AREA TYPE	STATE OR REGION/ METROPOLITAN PLAN FOR AREA WITH PRIMARY AIRPORT IN LARGE HUB	REGION/METRO PLAN FOR AREA WITH PRIMARY AIRPORT OUTSIDE LARGE HUB	REGION/METRO PLAN FOR AREA WITHOUT PRIMARY AIRPORT
SYSTEM PLAN			
–Initial Plan	1	1	3
–Continuous Planning	2	3	4
–Supplemental grant for ongoing study	2	2	2

Figure 3–2. Priority System Matrix for System Planning

APPENDIX 25—CAPACITY PROJECT SELECTION CRITERIA

Background. Section 507(c) of the AAIA, as amended, authorizes the Secretary to make grants to primary airports and their relievers from discretionary funds for the purpose of preserving and enhancing airport capacity. In selecting projects for these grants, consideration is to be given to their effect on overall national air transportation system capacity, project benefit and cost, and the financial commitment of the airport operator or other non-Federal funding sources to preserve or enhance airport capacity. Because the demand for these discretionary funds exceeds the amount available, the FAA is unable to fund all of those capacity projects for which airport sponsors wish to obtain grants.

The FAA has developed project selection criteria to help make decisions on the relative priority of competing capacity projects proposed during the fiscal year. Under this system, projects are favored which best preserve and enhance capacity in the national system of airports and whose sponsors have demonstrated the required commitment to capacity enhancement.

In examining airport capacity and congestion, the major problems occur in the busier locations and capacity development at these airports appears to offer the greatest opportunity for system relief. These criteria will not exclude any primary airport or reliever which can contribute to system efficiency and capacity, nor will the criteria result in only the largest airports receiving discretionary grant funds.

Other information, such as a sponsor's ability to fund projects without Federal aid, or how a sponsor uses entitlement funds, is considered in awarding discretionary grants and in determining the dollar amount of Federal participation.

Purpose of Criteria. The criteria, when uniformly applied to all proposed projects across the nation, ideally should allow FAA to rank-order these diverse projects according to their value in reducing delays and increasing capacity not only at the airport where the project is accomplished, but also according to their beneficial impact on airspace system delays and on delays and capacity at other airports in the national system.

FAA has a major initiative underway to develop computer modeling techniques to measure and analyze system impacts of airport development. As this initiative progresses, these techniques maybe used, as applicable, in selecting optimum projects for enhancing and preserving capacity. Until that time, the methodology outlined in this paper will be used by FAA as a primary consideration in determining program funding under Section 507(c)of the AAIA.

Criteria Development Methodology. The AAIA requires the FAA to consider three factors:

1. Effect on the overall national air transportation system.
2. Project benefit and cost.
3. Financial commitment of the sponsor or other nonfederal funding sources to capacity.

The methodology used in developing the criteria was to first examine the impact of the airport on the system, then look at the effect the project will have on the airport operation and finally apply guidelines to determine the commitment of the sponsor to preserve or enhance airport capacity. Weighting each of the first two factors and combining them yields a relative value of the project in terms of the legislative requirement. The commitment of the sponsor is the subject of a separate examination to determine whether the sponsor meets certain financial prerequisites. The development and use of each of the three factors is discussed in the following.

Factor 1. Effect on National System. This factor is developed for each primary airport with significant current or potential capacity problems. It is calculated independent of any specific project under review at a particular airport and is based on airport activity and market characteristics for which information and data are available. Four parameters are chosen:

1. Delay
2. Aircraft operations
3. Nonstop connectors
4. Proportion of connecting passengers

Each of the four parameters are measured and values assigned the airport according to Tables I through IV. The values are totaled and, if applicable, bonus points are added if an airport is determined to be a "new hub" or a "commercial alternative airport." Each parameter and bonus point awards are discussed below.

Delay. This parameter is made up of both current aircraft delay in hours per year and projected delay in 10 years. Delay hours are a direct measure of capacity shortfalls at an airport, but taken alone do not measure impact of the airport on the national system. FAA collects and analyzes delay data annually and makes 10 year forecasts for all major airports. Both current and forecast delay are given separate scores in accordance with Table I.

Table I—AIRCRAFT DELAY IN HOURS/YEAR

Hours	Current Delay Points	Forecast Delay Points
10,000–19,999	1	1
20,000–29,999	2	2
30,000–39,999	3	3
40,000–49,999	4	4
50,000+	5	5

Airport Operations. This is a direct measure of how busy an airport is in terms of aircraft takeoffs and landings. It is a logical conclusion that the busier the airport, the greater impact the airport will have on the national system. Aircraft operations were chosen over passenger enplanements for two reasons. First, the FAA's initial focus for providing relief from capacity constraints is directed at airside facilities – runways, taxiways, and aprons – to accommodate greater number and frequency of landings and take offs, relatively independent of aircraft size. Passenger enplanements, although another available measure of airport "busyness," is not as direct a measure. Secondly, delay is measured in this criteria development methodology in terms of aircraft operations, not passenger delay. Points are given as follows:

Table II—ANNUAL AIRCRAFT OPERATIONS

OPS (x 1000)	Points
0–199	1
200–299	2
300–399	3
400–499	4
500+	5

Nonstop Connectors. The number of airports served nonstop by a given airport is another indicator of the sensitivity of the national airport system to delays or lack of capacity at the given airport. A period of severe delays at one airport connecting directly to fifty others would cause a ripple effect much greater in extent than at another airport with an equal number of operations, but connecting directly to only twenty others. Put another way, this parameter measures, to some extent, the hub characteristics of an airport. Each candidate airport is examined to determine the number of the busiest 60 airports in the country to which it has direct flights. This number could vary from fifty nine at a location such as Atlanta or Chicago O'Hare to three at one of the smaller airports. Points are given as follows:

Table III—NONSTOP "60"

Connections	Points
5–9	1
10–19	2
20–29	3
30–49	4
50–59	5

Proportion of Connecting Passengers. Similar to the "Nonstop Connectors" parameter, this parameter is an indicator of the hub characteristic of an airport, and thus its impact on other airports in the system. Data developed by the Research and Special Projects Administration were used to determine what percentage of total enplaned passengers at each airport were passengers connecting to another flight.

Table IV—CONNECTING PASSENGERS

Percent	Points
10–19	1
20–29	2
30–49	3
50–59	4
60+	5

Emerging Hubs. An airport which is not now considered to be a hub, but which is expected to become one, or is expected to significantly increase passenger connection operations, may receive up to 3 extra points added to the airport impact factor. These points may be added if there is a commitment or convincing evidence of an airline's intent to begin or expand a significant hub operation.

Commercial Alternative Airports. A commercial service airport located in a metropolitan area with other major congested airports,can and often does provide relief at those congested airports by giving commercial passengers an alternative arrival or departure point. To the extent that airport development at the secondary airport can entice commercial operations from the capacity-constrained airport, additional capacity is afforded the service area. This type of capacity enhancement is recognized in the criteria by raising the commercial alternative airport forecast delay hour score (Table I) to equal the forecast delay score of the major airport.

Compiling the Airport Impact Score. Each primary airport considered is examined and awarded points in accordance with the six factors discussed above, and the points totaled. This airport impact score is then used for that airport as part of the project score for each project at that airport during that fiscal year, since it is not anticipated that the impact score will change during any one year. FAA intends to update these scores annually. Although there is imprecision in forecasting, sampling errors and uncertainties of factor weighting, these scores give a good indication of relative effect of the airport on the system.

Reliever Airports Impact Scores. Reliever airports areawarded points based on the score of the congested primary airport which they relieve. The reliever scores are calculated by using a percentage of the primary airport score proportional to the amount of general aviation traffic at the primary, the theory being that the higher the general aviation traffic at the congested airport the greater the opportunity for siphoning it off to the reliever. The reliever airport scores will be rounded to the nearest whole number.

TABLE V

GENERAL AVIATION ANNUAL OPS AT THE PRIMARY AIRPORT	PERCENTAGE OF PRIMARY SCORE GIVEN THE RELIEVER AIRPORT
Greater than 90,000	80
70,000 – 90,000	70
50,000 – 69,999	60
30,000 – 49,999	50
Less than 30,000	40

Factor 2. Project Benefit and Cost. The second half of the analysis for the priority system is dependent upon the type of work proposed and its benefit to airport and system capacity. This factor is similar to and is generally based upon the priority system used by FAA since 1984 to make funding decisions in the Airport Improvement Program. This system was announced in the Federal Register, March 28, 1984. The basic philosophy in developing the capacity priorities at existing airports is to give precedence to projects closest to the runway threshold, that is, runway work would be higher priority than taxiways, taxiways higher than aprons. Land acquisition or other development work necessary for a runway, for example, would also receive the same priority as the runway construction itself. Addition of new facilities is given precedence over extensions or overlays. The highest priority for capacity enhancement would be given to new airports in congested metropolitan areas.

Table VI shows the points assigned to the type project deemed to contribute significantly to capacity enhancement or preservation. It should be noted that only airside work (runways, taxiways, aprons) on an airport will be considered under these criteria since these areas directly affect the movement of aircraft on the airport surface or in the terminal airspace and thus impact on the national system.

Table VI—AIRPORT PROJECT IMPACT FACTOR

Item	Activity	Points
New Airport	Construct	20
	Acquire	20
Runway	Construct New or Reconstruct	15
	Extend or Overlay	10
Taxiway	Construct New or Reconstruct	10
	Extend or Overlay	8
Apron	Construct New or Reconstruct	8
	Extend or Overlay	5
Other	Describe	1–10

Combining Airport and Project Scores. The final step in preparing a project priority is the addition of the two scores as developed in the foregoing process.

Factor 3. Sponsor Commitment. In determining the extent to which the airport sponsor has demonstrated financial commitment to preserving and enhancing airport capacity, the FAA first examines the sponsor's use of grant funds to which the airport is entitled under Section 507(a) of the AAIA. If the sponsor is committing at least three years of current and future entitlements to the capacity project, the criteria is deemed met. In the case of large projects whose duration extends beyond three years, entitlements should be used over the entire construction/implementation period. Also, entitlements used on higher priority projects, i.e. safety or security projects, can be counted toward meeting this criteria.

Should the use of entitlements not meet these standards, FAA will review the past history of capital development funding at the airport, the future capital improvement plans and financing programs and make a determination whether sufficient commitment to preserving and enhancing capacity is demonstrated. Sponsors which cannot show this commitment will not be considered for funding of capacity projects from this special account.

FAA's Use of the Capacity Priority System. As with any priority system dealing with complex issues and relationships, a strict numerical ranking provides a good indication of value but may not necessarily produce the optimum project selection for available funding. This is particularly true of airport development projects which are subject to a number of factors which cannot routinely be taken into account in a standard system designed to assess hundreds of projects across the nation. Although airports share a great many commonalities, each is also unique in many respects – physical layout, demand patterns, operational restrictions, environmental constraints, community support, project timing, sponsor financial capability etc. These unique qualities will often have to be factored into project selection in conjunction with the priority system. The final FAA selection of projects to be funded from the special capacity fund is based not only on how the project scores in this system, but also on all of the other programming information available for making informed decisions.

Mr. GRIGGS. But basically, we're requiring the sponsor, i.e., the airport, to name an individual who will be responsible for the action, they will give that name to the testing laboratories and the consulting engineers, they will provide for the testing laboratories to meet the requirements. We have also worked very, very closely with the Airport Consultants Council in coming out with this. They will list the qualifications of engineering supervision and construction inspection personnel. We will have a listing of all tests that will be required. We will have procedures for ensuring that the tests will in fact be done, and they will submit at the completion of the project a final test and quality report. And I met with all the regions; I have had them come into my office. We've had a long session on it. The IG is very pleased with these steps, and I think this will ensure that it will be done properly from now on, sir.

A-76 STUDIES

Mr. LEHMAN. According to the IG, you did not agree to perform A-76 studies on all commercial activities presently planned to be direct contracted to ensure that the services contracted are more cost-efficient than in-house operations. Would you provide a listing of these activities (including the estimated cost of the contract) for the record and explain why you don't want to know whether it is more cost-effective to contract for these services?

[The information follows:]

FAA and the IG agreed in December 1989 that FAA's policy would be to perform A-76 studies on all A-76 related direct contracting activities listed in the FAA A-76 inventory with two exceptions: (1) Under the A-76 Circular, projects involving 10 or fewer FTE's may be exempted by management from undergoing a full A-76 study and (2) A-76 direct contracting involving more than 10 FTE's may be exempted by means of a formal waiver process. FAA presently has no A-76 related direct contracting activity listed on its A-76 inventory.

SOUTHWEST REGION SAFETY INSPECTIONS

Mr. LEHMAN. Last March, the IG reported that your southwest region had not accomplished the minimum number of required safety inspections, and had not planned discretionary inspections in accordance with your criteria, and had not accurately reported inspection results in the work program management subsystem. Since you agreed to take corrective actions and since the IG report was based on fiscal 1987 activities, have you examined how the southwest region performed in fiscal year 1989? For example, how many safety inspections were performed and how did that compare with the minimum number required?

Mr. BRODERICK. Mr. Chairman, we have in fact gotten over 97 percent of the required safety inspections completed in 1989. The region has installed an evaluation and planning staff which reviews quarterly their progress, not only in planning but in executing the inspections.

Let me point out, though, that in this IG report one of the things that we're criticized for is the outdated office automation equipment that we had and our inability to use it to access the very slow responding computer system in Oklahoma City. We have requests, as you know, that we've been discussing the last couple of days, we have requests in fiscal 1991 to make a big step toward replacing both the automation equipment in the offices and the equipment down at Oklahoma City, which is very important to the safety program.

PILOT CONTROL AND OVERSIGHT

Mr. **LEHMAN**. The IG stated that 50 percent of your evaluation or currency flights were questionable because pilots were flying in excess of minimum requirements, taking unsupported evaluation flights, or flying without a job-related requirement to be in the program. What action, if any, have you taken to implement the IG's recommendation that you improve your control and oversight?

Mr. **BELGER**. The IG made 20 recommendations from this particular evaluation that were directed at better controls and more oversight of this program. We agreed and concurred with 16 of those 20 recommendations. The 4 we nonconcurred with we reached agreement with the IG on alternative actions and we do have corrective actions underway.

RENTAL AIRCRAFT

Mr. **LEHMAN**. That same report refers to the expenditure of $3.7 million for unnecessary rental aircraft. Would you indicate for the record the actions you have taken or the reasons why you haven't taken any actions on the three IG recommendations related to unnecessary rental aircraft?

[The information follows:]

Based on discussions between the IG and the FAA and additional information provided by the FAA, the IG agreed to reconsider the recommendations in which FAA nonconcurred in its responses to the draft and final reports. It is understood that the IG subsequently closed the recommendations relating to unnecessary rental aircraft.

DRUG TESTING

Mr. **LEHMAN**. Under drugs and alcohol, what's the status of the Department's drug testing regulation as it applies to aviation industry employees? If a program is in effect, does it include random testing, how many tests have been conducted, how are you monitoring these tests and what have the results been?

Mr. **BELGER**. The industry program does include random testing. It's being implemented on schedule. It's too early to have aggregate numbers for the entire industry. As you know, some of the smaller carriers are just now getting into the requirement. The number of positives that have been reported to us is very small.

One of our challenges in the future—and I'd like to make a special appeal for the small number of positions that we requested in 1991—one of our challenges is to be able to monitor this program effectively in the future.

Mr. **LEHMAN**. Do you believe drug use is a serious problem among pilots and other aviation industry employees?

Admiral **BUSEY**. No, we don't think it is, Mr. Chairman. But as Monte mentioned, we just don't have enough results yet from the testing program to validate that. But we don't anticipate that we're going to have a serious problem.

NORTHWEST AIRLINES CREWMEMBERS

Mr. **Lehman**. Tell me about these three Northwest Airline crew members. What really happened? How drunk were they?

Admiral **Busey**. The blood alcohol tests that were taken after the flight had taken place from Fargo, North Dakota to Minneapolis, Minnesota early in the morning, about a one hour and a few minutes flight, but the blood alcohol tests that were taken by the local authorities indicated, as I remember, .12 blood alcohol content on the part of the pilot in command, and a .06 and a .07 on the part of the first officer and the second officer on the flight.

The three—to fill in a little bit—the three were observed at a local watering hole in Fargo, North Dakota consuming———

Mr. **Lehman**. Not much else to do up there.

Admiral **Busey**. The afternoon and the evening, they were on a layover there and they were consuming beverages in a bar and it went on quite a while.

That evening, the people there in the bar observed a lot of their actions and obtained their names and an anonymous caller at about two o'clock in the morning, a good citizen who was concerned, said she knew the names of these individuals, knew they were airline pilots———

Mr. **Lehman**. You said "early morning"—how early do you mean? Two or three o'clock?

Admiral **Busey**. Yes, it was about two or three o'clock in the morning when he made a call———

Mr. **Lehman**. I'm talking about the flight.

Admiral **Busey**. The flight was a 6:30 departure—I believe it was 6:30.

Mr. **Broderick**. Scheduled for 6:00.

Admiral **Busey**. Scheduled for 6:00. It actually went about 6:30. But the anonymous call was made in the very early hours of the morning. Our relatively inexperienced FAA field person in Fargo went to the airport at about 5:15 or so that morning, confronted the two cockpit persons, the captain and the first officer that were there doing flight planning, told them why he was there, told them that he had been called, observed their performance, could not discern visibly any impairment on their part. The second officer, the flight engineer, showed up a little late. He, too, did not exhibit any impairment.

The bottom line is the flight departed because our inspector felt that he did not have probable cause to stop it, but he had been in communications with higher authority. Our inspector in Minneapolis met the aircraft on its arrival with two law enforcement agents and airport policemen and a local policeman, made a citizen's arrest, turned them over to the local law enforcement people, who then took them for an officially administered blood alcohol test, and that test using the same sample of blood was done again 24 hours later and corroborated the accuracy of the initial test.

We immediately revoked, under emergency suspension procedures that I have, their operating certificates so they wouldn't fly. They have now been indicted before a Grand Jury and are subject to criminal prosecution for operating under the influence, and of course having the high blood alcohol content. There will be criminal proceedings taken against these individuals.

Mr. **Lehman**. Do you think this is an isolated case?

Admiral **Busey**. We have no indication that this is anything other than an isolated case. The entire aviation community, I think, is upset by this and I can do nothing but assume that it's isolated at this time.

Mr. **Lehman**. And you've said that their licenses have been revoked for perpetuity.

Admiral **Busey**. My powers enable me to revoke their licenses for up to a year, and then they can come back through a medical examination, which if there's dependency indicated through that, then rehabilitative actions can be taken, but they have the opportunity to go back through an inspection process and regain their licenses after a period of time.

Now, the criminal proceedings may take other courses of action that are beyond my control.

Mr. **Lehman**. If they appeal this, they go through NTSB?

Admiral **Busey**. Yes, the emergency revocation action that I took, they have the right to have an appeal of that revocation decided within 60 days and none of the individuals elected to appeal my action. So their appeals will now be scheduled for normal review by the NTSB, and that can be any time up to a year.

Mr. **Walden**. Each of the three did file an appeal from the emergency nature of the order, but they waived, on the eve of the hearing before the NTSB administrative law judge, they waived their right to an expedited hearing and that allowed for the criminal prosecution to take place. And therefore there is no hearing as of yet scheduled before the administrative law judge.

Mr. **Lehman**. But they are grounded—they don't fly now.

Admiral **Busey**. That's correct.

DRUG TESTING OF FAA EMPLOYEES

Mr. **Lehman**. Last year, it was indicated that under your own testing program, less than 1 percent of your employees have tested positive for drugs. Has your experience remained essentially the same during the past year?

Admiral **Busey**. Even better. Yes, sir. Essentially the same, if not a little better.

Mr. **Lehman**. Please expand on your answer for the record, citing pertinent statistics.

[The information follows:]

Under the Random Drug Testing Program as of March 31, 1990, we have conducted 31,251 tests resulting in 144 positives—a rate of 0.5 percent.

Mr. **Lehman**. Have you had any false positives, classification errors, or other problems with your testing lab?

Admiral **Busey**. Not in the last year. As I recall in my briefings, there were some problems initially when the testing process was set up. But for the last year, it's been running without any problems.

Mr. **Lehman**. Please provide for the record a detailed drug testing cost breakdown for fiscal years 1989, 1990 and 1991 showing the number of tests, cost per test and laboratories used. Please also explain how the number of tests per year is determined.

[The information follows:]

Fiscal year	Number of tests	Cost
1989	16,584	$2,500,000
1990	15,944	2,400,000
1991	15,000	1,500,000

Sample collection is performed by Upjohn Health Care Services (located nationwide) at an average cost of $125 per sample, and sample testing is performed by CompuChem Laboratories (located in Raleigh, North Carolina) at an average cost of $25 per test, for an average test-related cost of $150 per sample. This average cost has remained stable over the three year period, resulting in an average annual test-related program cost of $2,100,000 per year.

The number of tests performed each year is a function of drug testing goals established by the Office of the Secretary of Transportation. The current monthly goal is 1,500 departmentwide.

ALCOHOL REHABILITATION PROGRAMS

Mr. LEHMAN. How many of your employees entered an alcohol rehabilitation program or were removed from employment for alcohol abuse during the last year?

Mr. MCLURE. I have some numbers on this. The ones that we know about that entered through our employee assistance program, there were 77 of our employees who entered rehab, 36 came out. The time frames overlap there, that doesn't mean that all 77 won't come out eventually. Of those that didn't make it, 13 people resigned the agency, we fired 3.

DRUG TESTING AT REPAIR STATIONS

Mr. LEHMAN. There are different repair stations operated by people other than the airlines themselves throughout the country and even overseas. Are these repair stations that operate independently and contract with airlines, do they require any drug testing done at those places?

Admiral BUSEY. Yes, sir. They do indeed. The domestic repair stations do. Now, the international, the overseas repair stations, because of sovereignty and extraterritoriality issues, it's going to take us a little time to be able to work with those governments to try to get them to institute some of these tests, and in fact some of those countries prohibit testing their employees. So it's going to be a long term process for us to be able to institute that in the overseas repair stations.

Mr. LEHMAN. Well, you know some of the complaints we get about that.

Admiral BUSEY. Yes, sir.

CIVIL PENALTY ASSESSMENT

Mr. LEHMAN. What's the current status of your civil penalty assessment demo program and when does the current authorization expire?

Admiral BUSEY. The current authorization of our assessment demo program expires the end of this month, Mr. Chairman. That is the temporary extension which was received a few months ago. In working with Chairman Oberstar and his group, we committed to changing our procedural rules in the civil penalty process.

We have gone to final rule, which includes all of these changes that we committed to. That rulemaking has gone final now. It will be published next Monday, I believe. Tomorrow it will be published. But last Friday, we had a minor setback because we had the judicial decision pursuant to the lawsuit between the FAA and the Air Transport Association. The court directed us to go back and provide a public comment period for the entire procedures. That had not been done when we first went to rulemaking, we went immediately to final rule.

So also tomorrow we'll be publishing the full rule which includes all the changes that we committed to with Chairman Oberstar for a 30-day comment period. Of course, in the interim, all of our procedures leading towards action on these civil penalty cases that are pending have been stopped. We must wait for the comment period and until we go to the final rule so we are in compliance with the court order.

Mr. LEHMAN. What is your position on the transfer of this to NTSB?

Admiral BUSEY. We feel that that's not the way to go. Our experience has been that we can separate the attorneys that are advising me from those directly involved in prosecuting the cases, and those that are involved in advising me in taking whatever referral action I need to in those processes. Our experience, the data that we've accumulated and our ability to process these cases indicates that we can do it significantly more speedily than can the NTSB, and we prefer to keep all of that in-house rather than go to the NTSB.

The Administrative conference also recommended that we continue or that it not go to NTSB. Is that correct, Greg?

Mr. WALDEN. The Committee on Adjudication, which is the only body of the Administrative Conference to have discussed the question, did not recommend that the transfer be made to the NTSB as the consultant to the Administrative Conference recommended. What they did is they urged that the program be made permanent and they discussed the issues pro and con and recognized that the traditional standard method for adjudication of civil penalties is within the agency.

Mr. LEHMAN. Do you have the number of people assigned to this program?

Mr. WALDEN. There is a small handful of attorneys who advise the administrator on an appeal from an administrative law judge's determination. There is another small handful of attorneys who prosecute appeals from administrative law judges' determinations to the administrator. The bulk of the attorneys in the regions, about 105 attorneys in the 9 regions and some in headquarters, prosecute cases from initial notice of proposed civil penalty up through a hearing before an administrative law judge.

But those attorneys, those 100 attorneys, also have a number of other enforcement responsibilities, including certificate actions that are appealed to the NTSB, cases over $50,000 that are referred to U.S. courts, and a number of other non-enforcement matters such as rulemaking, procurement, airports and environmental and civil rights.

Admiral **Busey**. I am very hopeful, Mr. Chairman, that the Congress will in their wisdom see fit to give us a permanent extension of this civil penalty opportunity. It gives me another tool to help me in my enforcement responsibilities and we can enforce compliance with our rules much more speedily this way than referring these to the U.S. Attorney, who in most cases, because of the magnitude of the cases, just chooses not to pursue them.

Mr. **Lehman**. And this would be one of the priorities that they have to do?

Mr. **Walden**. It's one of many competing priorities.

DIGITAL COMMUNICATIONS ARCHITECTURE

Mr. **Lehman**. A 1988 report by your agency indicated that a digital communications architecture would best meet the future communications needs of the NAS plan systems. However, some communications projects are still based on an analog architecture. Have you identified specific milestones and strategies for transitioning your communication systems to a digital architecture? If so, please describe them for the record.

[The information follows:]

The FAA has identified a number of projects to transition our communications systems to a digital architecture. These projects include the Low Density Radio Communications Link (LDRCL), the FAA Leased Interfacility NAS Communications Systems (LINCS), the Routing and Circuit Restoral System (RCR), conversion of the Radio Communications Link (RCL) to a digital system, the FAA Telecommunications Satellite System (FAATSAT), the Voice-Switching and Control System (VSCS), and the Tower Communications System (TCS).

The LDRCL will provide digital low density microwave radio equipment to establish new spurs and systems in support of NAS requirements not previously covered under the RML replacement and expansion program. The LDRCL will begin implementation in March 1991 and be completed by July 1992.

The FAA LINCS will replace the FAA's current analog leased telecommunications services with a leased system featuring a digital backbone and a variety of digital leased services. Implementation is scheduled to begin in the first half of 1991. Services will be transitioned during the next two years.

The RCR will provide digital switching equipment to increase the reliability and availability of critical and essential services on FAA owned and leased facilities. The RCR will begin implementation in May 1992.

The RCL will be converted to a digital microwave system in two phases. The first phase will provide digital modems that will allow digital trunking over the existing analog system. This phase is planned to begin implementation in the first quarter of 1995 and be completed by the first quarter of 1996. The RCL will be converted to a full digital system in the second phase of the project. The second phase is planned to begin implementation in the last quarter of 1996.

The FAATSAT will provide FAA digital satellite interfacility communications systems to solve the "Tail Circuit/Last Mile" availability problem by providing alternate routes through satellite technology. FAATSAT will also provide primary connectivity for applications such as broadcasted data where satellite services are superior. The FAATSAT is planned to begin implementation in mid-1995.

The VSCS and TCS programs will enable the replacement of older analog voice switching systems with modern digital technology. VSCS contract award is scheduled for late in fiscal year 1990, wile a TCS award is projected for June 1992.

Mr. **Lehman**. How will transition to a digital environment impact the costs of projects that are currently being procured or developed, such as the analog radio communications link, data multiplexing network, analog and digital voice switches and data switches?

[The information follows:]

The transition to a digital environment will impact the cost of the analog radio communications link. The cost to convert the RCL to a digital system is estimated at $168 million.

The recently awarded Data Multiplex Network (DMN) Phase III contract includes equipment for multiplexing data onto digital facilities. The use of this equipment in conjunction with high-speed digital transmission facilities should be more cost-efficient than earlier analog techniques.

New voice switches such as VSCS and TCS will be digital devices, and will be readily integrated into a predominantly digital environment. FAA data switches will not be affected by the transmition to a digital transmission network.

PROHIBITED AIRSPACE

Mr. **Lehman**. What progress have you made in working with the DOE regarding prohibited airspace over DOE facilities and with DOD regarding special use airspace? We talked about the Department of Energy in Amarillo yesterday.

Admiral **Busey**. Yes, sir. And that, of course, is the crux of our working with the Department of Energy. As we discussed yesterday, the Secretary of the Department of Energy has asked us to pursue this matter in order to protect these nuclear materials production facilities. We are doing that through our rulemaking process. We've conducted a series of public hearings. We'll go to a proposed rule; we'll get the public comments and then we'll decide what direction we'll go from there.

As far as our cooperation with DOD, I also think I mentioned yesterday that we are making a lot of progress in our cooperation concerning special use airspace. We're building towards a procedure over about the next two years where we'll ultimately have real time command and control over special use airspace so that when defense does not need some of these low level training routes or other areas that they need for training, when those airspace chunks are not in use, they'll revert immediately back to us for airspace use for commercial traffic.

Mr. **Lehman**. The military does not easily give up their airspace.

Admiral **Busey**. No, I understand that. They always want more, but they do have a valid requirement for training and we have a need to separate the type of military training that they're doing in these airspaces from our civilian traffic for safety reasons. But I think we've got a long way to go to more efficiently utilize some of these special use airspaces.

MODE C TRANSPONDER

Mr. **Lehman**. Last December, several aviation groups petitioned you to establish a Mode C transponder "floor" around terminal control area airports. What's the status?

Admiral **Busey**. The issue surrounds the so-called Mode C veil wherein we impose this rule and require all aircraft flying within a restricted airspace around a terminal area to have a Mode C transponder which would provide an altitude indication on the radar screen so our traffic controllers can modify that better.

The concern was that our radars do not see down below a certain altitude, therefore it doesn't make sense for us to extend this requirement all the way to the ground. It impedes actions in and out of fringe airports that may be out on the periphery of the 30-mile range that we had set forth.

We are now in the process of making some changes to that, providing general aviation operators, fixed base operators, an opportunity to operate from fringe airfields without having to be transponder equipped, as long as they fly through certain routes directly into and out from under that terminal control area, and as long as they stay below an altitude of about 1200 to 1500 feet.

Mr. LEHMAN. That completes the general questions. Mr. Coughlin?

TILT ROTOR TECHNOLOGY

Mr. COUGHLIN. Thank you, Mr. Chairman. I just have some seriatim general questions, if I might, unless you want me to yield.

First, I had the opportunity a week ago to go down to Fort Worth, Texas, and see the V-22 tilt rotor technology which appears certainly to me to be pretty remarkable technology. I say this not having a plant in my district that's involved in this. It particularly appeared to have some civilian applications in terms of relieving airport congestion. Do you see any civilian applications for the V-22 technology?

Admiral BUSEY. Yes, sir, I very definitely do. And I'm very familiar with the technology and specifically with the V-22 from my previous incarnation, if you will. As a matter of fact, I've flown the XV-15 which is the scaled down predecessor version of the V-22.

I am very excited about the potential commercial applications of this aircraft, because it offers a way to relieve runway congestion for short flights, let's say flights 300 to 500 miles, using heliports from central city to central city or even using established airports because the aircraft doesn't need a full runway to operate from.

So, if we can relieve some of the short commuter runs by using this type of technology instead of the fixed wing technology that we're using now, it promises to give us a little capacity improvement for those short hauls.

But, having said that, we simply have to have the technology thoroughly tested and thoroughly wrung out in its military application format before I think we can be comfortable that it's ready for commercial use. This has traditionally been the way that we bring new aviation technology into our system.

Mr. COUGHLIN. Could that technology be used at major airports to relieve some of the off loading time and free up runways?

Admiral BUSEY. Yes, sir. It definitely could. That's the key thing it will be able to offer.

Mr. COUGHLIN. The military technology part of it, of course, requires being able to fold the rotors and being able to reverse the wing so that it lines up with the fuselage of the aircraft which will not be necessary in the civilian version, I take it.

Admiral BUSEY. That's true. The wing and the blade folding requirement for the military application would not have to be in the civilian aircraft, and therefore the civilian version could be less complex.

Mr. COUGHLIN. Are you doing any proceedings to certify that as a civilian aircraft?

Admiral **Busey**. Yes, we are. We have established a rotary wing office in the FAA and as a matter of fact for about the last two years, we have had a presence at the Bell-Boeing facilities so that we can be prepared for commercial certification of this aircraft. We've participated in it so that we can understand the technology and understand the requirements that will be placed on us when it does come time to certify.

Mr. **Coughlin**. Are you proceeding along the certification path?

Admiral **Busey**. No, we're not proceeding on a certification path per se, because we really don't have a commercial variant ready for final certification. But one can construe that we're on this path because of our presence and because we're involved in understanding the building of the aircraft. Tony, do you want to add anything to that?

Mr. **Broderick**. Yes. The companies, Bell and Boeing, have applied for type certification, but it's a little bit unusual because there isn't a user that has applied for type certification. So technically speaking, we are in a certification project, although it's of course going slowly and there isn't anybody that the aircraft has been sold to yet. From our viewpoint, we're in a certification project with them.

Mr. **Coughlin**. Considering the potential of the aircraft, would the FAA be willing to share the costs or participate in the costs of the remaining testing?

Admiral **Busey**. No, sir. And I've thought a lot about this, anticipating that I would get this question. The statutory responsibilities that we have in the FAA does not include being involved in the developmental work of new aviation technology. Our role is one of ensuring that that developed technology as it's brought to the stage where it's ready for use in the commercial market—our role is one of certifying it's safe and ready to perform, and then continuing the oversight responsibilities over that airframe to ensure that it's properly maintained, safely operated, etc.

So I see no role for us in the development of this particular technology, or any technology in the FAA. We're not funded for it, I'm not staffed for it and I don't envision us very easily being able to shift into that kind of a mode.

SUPERSONIC TRANSPORT

Mr. **Coughlin**. Twenty years ago, the FAA unsuccessfully, I might say, and I was one of those who opposed it——

Admiral **Busey**. The SST.

Mr. **Coughlin**. They tried to develop the SST and I'm very glad we didn't.

Admiral **Busey**. Yes. And I think we should learn today from that futile attempt which, in my judgment as I look back, clearly indicates that the FAA is not really a body that can do that kind of work.

Mr. **Coughlin**. I'm much more encouraged about the economic potential of the tilt rotor, however, than I was about the economic potential of the SST.

Admiral **Busey**. Yes, sir. If I might say, Mr. Coughlin, I've got enough problems on my hands bringing in the procurement programs that we've talked about this morning, I don't need another one.

TILT ROTOR TECHNOLOGY CERTIFICATION

Mr. COUGHLIN. It has been claimed that it would be impossible for the FAA to certify the tilt rotor technology because of the fact that even with various redundant systems, if those systems fail when the aircraft is in the aircraft mode the rotors or propellers would be seven feet under ground if the aircraft had to land in that configuration. Is that a likely reason for not being able to consider certifying it?

Admiral BUSEY. No, I don't see that—I understand what you're saying, if some failure occurred wherein the sails could not be raised up into the helicopter mode because of the blade diameter, if one tried to land in an airplane mode. I think probably what would happen is the prop blades would be sheered off and we had that happen with turbo prop aircraft and prop aircraft occasionally, when a nose wheel had collapsed or something of that nature. So I don't see that as an impediment to certifying the technology.

Mr. COUGHLIN. You don't see that as a per se reason?

Admiral BUSEY. No, sir.

Mr. BRODERICK. We have a certification basis, an interim certification basis, for tilt rotor type aircraft. That specific thing is considered in there as an issue. It's got to be addressed, but it's not a per se basis for not certifying. And it's very similar to a compound helicopter. In the helicopter mode, if one of the rotors for some reason stops, you're going to have an accident also.

Mr. COUGHLIN. On another subject—Bob, I'd be happy to yield to you. I've got a number of questions, but I don't want to hold you up if you've got questions.

Mr. CARR. Go ahead. Keep going.

FAA AIRCRAFT FLEET

Mr. COUGHLIN. How many aircraft does the FAA have now?

Admiral BUSEY. I believe 62.

Mr. COUGHLIN. How many of those are specialized aircraft and how many of those are general purpose aircraft, if you can call them that?

Mr. BELGER. In the ball park of about 36 of those aircraft are flight inspection aircraft, specially equipped with flight inspection equipment; 6 or 7 of those aircraft are research and development aircraft which have special research and development equipment installed. The remainder would basically be aircraft used for training or evaluation or currency and that type of non-special use.

Mr. COUGHLIN. How many of those non-special use are jets?

Mr. BELGER. Half a dozen at the most. I can provide it precisely for the record.

[The information follows:]

The FAA currently has 64 aircraft. (Source: The Inventory of FAA Aircraft as of April 1, 1990)

Thirty-nine (39) of the aircraft are specially-equipped flight inspection aircraft and nine (9) aircraft are designated and specially-equipped for research and development. Six (6) aircraft assigned to the training program and nine (9) aircraft used in the Evaluation, Currency, and Transportation flight program could be considered general purpose aircraft.

Six (6) of the aircraft considered general purpose or non-special use are jets:

1 Cessna Citation C-500
1 Cessna Citation C-550
1 Gulfstream G-IV
1 Jet Commander AC-1121
1 Sabreliner NA-265-40
1 Douglas DC-9

Mr. COUGHLIN. Are those aircraft generally available in the event of an accident to the NTSB to get to the accident site?

Mr. BELGER. We make our aircraft available to the NTSB. Generally, we provide service to the NTSB out of Hangar 6 at National Airport.

Mr. COUGHLIN. Is that true of non-aviation accidents as well as aviation accidents?

Mr. BELGER. I'm not aware that we have supported the Board in the last year for any non-aviation type of incidents.

Mr. COUGHLIN. Upon request, would you support them?

Mr. BELGER. We would consider it.

Admiral BUSEY. We supported the Valdez oil spill, we supported the San Francisco earthquake. Those are examples, but I don't believe the NTSB has asked us to support them.

Mr. BELGER. That was secretarial support as much as the Board.

Admiral BUSEY. NTSB gets our number one priority, Mr. Coughlin, on any request they make to support their team.

Mr. COUGHLIN. For non-aviation related or for aviation-related accidents?

Admiral BUSEY. Certainly for aviation accidents, and for non-aviation related. If they were to ask, yes.

TARIFF AND TRADE PRACTICES

Mr. COUGHLIN. Let me ask you about some legislation that's pending before the Congress, if I might. H.Con.Res. 280 urges the President and the United States Trade Representative to continue the traditional practice of negotiating international airline service routes bilaterally, with individual agreements between the U.S. and each foreign country. The resolution opposes civil air transportation services under the General Agreement on Tariffs and Trade (GATT).

Is there an Administration position on this or FAA position on this? Would this create serious competitive disadvantages for U.S. airlines and open these airlines to foreign ownership and control?

Admiral BUSEY. I'm not even familiar with the issue. Fortunately, one of the things I do not have to get involved in as FAA administrator are these commercially oriented issues. That's a Department of Transportation issue. But, Dale, do you have anything you could offer in that regard?

Mr. MCDANIEL. Not much additional. FAA does not involve themselves in those discussions, except to make certain that any safety issues associated with that are properly taken care of in the GATT agreement. So we monitor that but take no position with regard to the outcome.

Mr. COUGHLIN. I'll save that for tomorrow's OST hearing then. Senator Kassebaum and Representative Boehlert have companion bills to force the adoption of an industry-wide plan to reimburse ticket holders when airlines suspend service. Consumers are the airlines' biggest creditors, holding on an average $3 to $4 billion in outstanding tickets at any one time.

Is this protection necessary to help restore public confidence in the U.S. air transportation system, especially after the Braniff failure, and does the Administration have a position on this or do you?

Admiral BUSEY. Again, could I suggest you ask that question of the Deputy Secretary tomorrow, sir? That's the Department.

CHILD SAFETY RESTRAINTS

Mr. COUGHLIN. Again, our colleague Jim Lightfoot has two aviation pieces of legislation pending: one allows persons over 60 years of age to continue serving as commercial air carrier pilots, the other requires mandatory FAA regulations on the use of child safety restraints for infants and toddlers too small to be adequately protected by adult seat belts. Do you have a position on either of those?

Admiral BUSEY. Yes, sir. My position on the former is I'm opposed to any change at this time that would extend the age of a commercial pilot flying as an airline transport rated pilot in command. We simply do not have the medical evidence to indicate that that's a prudent course of action. As I previously mentioned, what limited information that I have available to me thus far indicates that if we did go to such rulemaking, we would have to consider lowering the age.

On the second issue, a mandatory requirement that we require the use of infant restraint seats, as I'm sure you're aware, we have a rulemaking, a proposed rule, on the street now for public comment which first proposes that we make it mandatory that airlines permit parents to use infant restraint seats at any time they wish, but we've also asked for public comment on whether the general public feels that we should make it mandatory for child restraint seats to be used.

I would prefer to wait for the public comment and see what the public's intent is and their wishes are, rather than have legislation that mandates it at this time.

AIRLINES OF THE 1990'S

Mr. COUGHLIN. And finally, let me ask—Fortune Magazine predicts the airlines of the 1990s will follow this pattern: first have debt; second, fares will rise as competition falls; third, be subject to greater union power; and fourth, see a major presence of foreign airlines. Do you agree with Fortune?

Admiral BUSEY. I haven't given that any thought. I'm not sure that I agree with all of those issues, but really from my position of being administrator of the FAA, it's immaterial to me what happens in those regards as long as that airline, regardless of what the competitive pressures or the business pressures on it may be, continues to operate and maintain its aircraft in a safe manner, and that we continue to provide the levels of security that we mandate.

Mr. COUGHLIN. Thank you, Mr. Chairman.

Mr. LEHMAN. Thank you, Mr. Coughlin. Mr. Carr, do you have any questions?

PONTIAC AIRPORT STAFFING

Mr. CARR. Thank you, Mr. Chairman. Nice to see you, Admiral, everybody. Gentlemen.

My first concern that I want raise with you is something that perhaps at some point you could send someone up to the office to deal with me in greater detail about. It concerns Pontiac Airport in my district. It's a Level 3 VFR airport. The people up there have, in my judgment, made a fairly compelling case for their inclusion in the pay demonstration program. If you're able to answer right now as to why they're not, maybe I could take that answer, but it may be more complex than that, I suspect.

Just briefly, so we can develop record here, they make the case that it's a hard to staff facility, in part because of pay, I suppose, and they've posted slots and not had them filled. Apparently, there was one slot that was posted for six months, only one person bid for it and that person was found ineligible and when it was reposted six months later the same individual applied and he was the only one.

Pontiac-Oakland is a fairly busy place from the figures that have been given to me and I'd like to have them all verified, maybe by your folks. But it appears that as compared to six Level 5 facilities, six Level 5 facilities have only 81 percent of their total operations a year: Miami, National, Seattle, Baltimore-Washington, Houston and Tampa all have fewer operations than Oakland-Pontiac.

They've provided me with the list of 31 Level 4 facilities, ranging all the way from Newark at 99 percent of their operations, to a low of Lubbock, Texas at 31 percent. And then of the Level 3 terminal facilities, Denver Centennial is at 97 percent of their operations, all the way down to a low of Saginaw Tri-City, Michigan at 14 percent.

It's a fairly busy place and those operations generally are conducted, I might say, having spent some time with those folks, because there's no airline that serves Oakland-Pontiac, there's a fairly large and very experienced, well trained and professional pilot base there with major corporations, but they also handle a lot of GA aircraft from pilots that are not as experienced.

And it seems to me, at least superficially, that when you're mixing a lot of professionals and non-professional pilots, not that they're not good or up to standard, it's just that that imposes an additional workload on the tower there.

They do have a bright display, which everybody here knows about because we talked about it for years with your predecessors. It took too long to get it, but they're grateful for it. It does assist them, but it still is not like having—and I don't think it's a digitized thing. It's not a digital display right now; I think it's still primary. I'm not sure where they're at in the pipeline for a digital display.

And so they make, at least to me, a prima facie case, not just because it's in my district but maybe because I'm there and they can see me, but it's a fairly thick documented case as to why they ought to be included in the pay demonstration program. Maybe you can have a comment for me on the record and if it requires somebody to come up and talk to me later, I'd be glad to meet with you.

PAY DEMONSTRATION PROJECT

Admiral BUSEY. Let me say that I'll have whatever expertise you'd like to have. We'll get Mr. Pollard and others to come up and talk to you. If I can reiterate what I mentioned this morning in testimony that's on the record in response to a similar input from controllers at the end route facility at the Indianapolis Center—the bottom line is I think the pay demonstration project—in the first place, it's too soon for us to tell whether it's providing results that will help us with our staffing problems in hard to staff facilities. I also said that had I been involved in the process, I would not have been in favor of instituting any kind of a demonstration project because the down side is as bad or perhaps worse than the up side, and of course the package that you have, similar to the one that was in from the Indianapolis folks, is indicative of this.

The FAA only selected 11 sites at 4 major locations. There were far more activities excluded. Since there are only about 2200 people in the pay demonstration project, far more excluded than included. They would all like to have it. I think the FAA in good faith picked what in their judgment were the historically hardest to fill facilities, be they a control tower, a radar facility or an en route center.

Today, my intent is not to include any more activities in the pay demonstration project. I'm very anxious for the Office of Personnel Management's overall pay package to be submitted to the Congress because we're hopeful that geographical pay differences will be included there.

I have to wait for that to see how it will help me in managing my total FAA work force before I can determine what additional steps I need to take to address the problems that all of my people throughout the system have, including the folks that you're talking about here.

That's what I really need to deal with. I need to have a pay methodology that has a base level core pay and then provide differential pay for geographical location, cost of living so to speak, and then also provide some sort of a performance pay differential.

But we'll send folks up, and unless, Bill, have you got any details you can add right now?

Mr. POLLARD. Sometimes I think we get caught up in our own criteria. I'm sure the numbers that you've been provided are accurate, but the traffic at Pontiac that you address would be what we would classify as VFR traffic because they're classified as a Level 3 VFR tower, and then when they make the comparison with the Level 5 facilities that you indicated, they're comparing VFR operations with IFR. And our whole classification process as it relates to facilities and ultimately the grades of the controllers, there's more weight given to an IFR flight than there is a VFR.

The other thing as far as not being included in the pay demo, in addition to what the administrator said, those types of facilities are in a situation where we can attract people such as you described and we can assign our academy graduates. We can staff them and sometimes it's not exactly the experienced controller that the facility would like to see, but we can provide staffing and then train those people.

INSTRUMENT FLIGHT RULES

Mr. CARR. In the tower, why do you give more weight to IFR than VFR?

Mr. POLLARD. It's the criteria that was established. With an IFR flight plan, it's a longer duration of time, there's more specific separation, and less visual separation applied. If they're operating VFR, they obviously have some responsibility there. If they're in the terminal controll area or working an en route center, it's normally a positive separation provided by the controllers. It has always been viewed as a higher level of workload.

Mr. CARR. I've never been a controller, but I've been a pilot and that doesn't seem to me to make a whole heck of a lot of sense. Maybe you can educate me.

Mr. POLLARD. I don't think I will be able to in a few short minutes, but just to give you one quick example: if you're operating in the pattern at Pontiac and you make numerous touch and go landings, each one of those counts as an operation from a VFR standpoint. And I think it's fair to assume that that's less workload, so to speak, than it would be if you're twenty different flights coming into a radar environment or into an area where we provide IFR separation.

Mr. CARR. Yes, but couldn't you say that the tower controller in an IFR environment, where it's 80 percent IFR, has a lot of help from TRACON getting everybody in trail?

Mr. POLLARD. That's true, and our classification at those type of facilities where they are actually split does take that into consideration. In the majority of our larger facilities, the controllers involved work both in the cab and in the radar room, so it's considered one facility with positions in both specialties.

Mr. CARR. True. But then that's segmenting the job. VFR—I don't understand why you just necessary that VFR is—maybe it isn't as sexy, but I don't see where you automatically say that VFR control is more difficult or less stressful or is less difficult or less stressful. In fact, I could see in a place like Pontiac where you've got 50 percent of your stuff coming into a dead stop on IFR flight plans, corporate fleets, having to sequence people who might be training doing touch and go's is a little hairier when you don't have full radar capability. And you're trying to sequence your VFR with the entrail IFR that's provided to you by the Detroit TRACON.

I would think that that—again, I've never been a controller; maybe you have to be inside that system to see something. But it would seem to me that that would take a little more effort than spotting somebody over the final approach fix and saying it's okay to land.

Admiral BUSEY. If I can interject here, by way of comparison and this may not be an apples and apples comparison, but in the pay demonstration project, of the 11 facilities that were put into that demo project, the New York TRACON and the Center were included therein, but the control towers at LaGuardia and Kennedy and Newark were not.

Now, because historically the TRACON and the Centers have been much more difficult to staff up, the workload is so much higher and stressing on the controllers there that they would prefer to go to the tower facilities or prefer to go somewhere south where the climate was a little better. So I would liken the situation at Pontiac, whether it's VFR or IFR or whatever it is with Kennedy, LaGuardia and Newark. They're very similar.

PAY DEMONSTRATION PROJECT

Mr. CARR. Well, we're really having two discussions here; one is about pay demonstration and the other is about the differential that we were told was owing to IFR–VFR. Maybe when somebody comes up to pay me a visit he could give me a little better education, because as a seat of the pants matter, I can't see why if you're in—now, FPL and cycling between the cab and the TRACON, that may be a different story. Anyway, let's move on.

Mr. POLLARD. Well, we'll be glad to do that. But the very issue that you bring up is our biggest problem with the pay demo, and that is that people that don't get it are equating their worth to the system or their value or their performance in the system as being less than those that do, and it certainly wasn't the intent. The intent was to address hard to staff facilities, but it's hard to convince the work force of that.

DETROIT METRO AIRPORT

Mr. CARR. Also on the local level for me, maybe somebody could give me the status of the AIP at Detroit Metro?

Admiral BUSEY. I think Len Griggs could probably give you that, sir.

Mr. GRIGGS. The projects that have been approved in the past for Detroit Metro—you're talking about Detroit Wayne County or Detroit Downtown? Detroit Wayne County?

Mr. CARR. Metro.

Mr. GRIGGS. We have recently approved a project, number 1590, which extended a runway, constructing an electrical vault and things like this. We have been working very, very closely with the airport authority. They came here the other day, Jamison and a contingent of people gave us a briefing on their master plan. I've been very much involved with the master plan over the last couple of years at Detroit.

They're talking to us about an LOI of something in the neighborhood of around $193 million for a total program for federal agency participation of $257 million. The total program cost they're looking at there is something in the neighborhood of $1.6 billion. As you are probably very much aware, it includes the building of two new runways, the extension of one runway and the associated taxiways, and the AIP eligible portions of the new ramp, if and when in fact the air carrier is brought on board. So, yes, we're very much aware.

Mr. CARR. The extension—what is that?

Mr. GRIGGS. They would like to build a new cross wind runway which would give them, as I recall, east-west capability.

Mr. CARR. I understand that; the question is on the extension. You say that right now, they have a grant for an extension.

Mr. GRIGGS. No, this is part of the program. The projects that were recently approved involved the extension of a runway and a taxiway.

Mr. CARR. Which runway was that?

Mr. GRIGGS. I'll have to provide it, sir. I'm not exactly sure which it was. If I had a diagram, I could tell you. They rehabbed a runway, they did some lighting work, they constructed an electrical vault and those kinds of things—upgraded to where they ought to be.

[The information follows:]

The runway and taxiway extension at Detroit Metro Airport was 3L.

DETROIT TOWER TRACON

Mr. CARR. How is the tower TRACON construction going there? Does somebody here know?

Mr. POLLARD. Detroit—we're scheduled for building occupancy in January of 1991 with a commissioning in October of 1991.

Mr. CARR. Also, when you send somebody to my office, would you ask them to prepare a little report on last year's use of the N-1?

Admiral BUSEY. Yes.

[The information follows:]

There have been 256 mission flights totaling 980.3 flight hours. This equates to a monthly average of 57.7 hours. The following is a breakout of flight hours by primary mission category:

	Flight hours	Percent
Transportation	523.3	53.3
Training	132.6	13.5
Currency	219.0	22.3
Evaluation	12.4	1.3
Other[1]	93.0	9.6
Total	980.3	100

[1] Other includes: Test/Ferry, Logistics, R&D, and Training IQ&S.

MAJOR POINTS

N1 has transported the NTSB Accident Investigation teams 18 times (8 with the G-III and 10 with the G-IV)

Training flight hours are on the increase. The first twelve months of G-III/G-IV usage accumulated only 68.4 hours for training. During the last 5 months, 64.2 hours were accumulated.

Transportation flight hour utilization breakout

NTSB Support	181.8
Disaster Support[1]	102.3
Other	239.2
Total	523.3

[1] Includes Hurricane Hugo, Alaska Oil Spill, and San Francisco Earthquake.

JOINT USE

Mr. CARR. Joint use—did you get into joint use while I was out? I have to apologize. I intended to be here for all of your testimony, but a couple of emergencies back home cropped up. did you talk about joint use?

Admiral BUSEY. We have talked about joint use and how Len Griggs is my agent directly involved with the special assistant for the Secretary of Defense, so that we're working with Defense for base closures coming up, and of course the key joint use facility that we're working is Scott Air Force Base.

Mr. CARR. Is that going well?

Admiral BUSEY. Going well. Seems to be blocked right now because of the Air Force requirement that the housing be relocated to the tune of $100 million and my position is basically that we're not going to pay for that out of AIP funds.

Mr. CARR. Well, I would just like to encourage you along that path. I think we have a lot of opportunities for joint use, and I know that there's some military resistance.

There used to be a study that I've kind of lost track of that was a joint FAA-DOD study on airspace. Maybe you were getting into that when I arrived today. Did that study ever get completed?

Admiral BUSEY. The joint use airspace study?

Mr. CARR. Yes. There was a joint study on restricted airspace and all that other stuff, what were the military requirements.

Mr. POLLARD. It did. I don't think the conclusions fully satisfied the states that were pushing that study, to have one centralized DOD airspace scheduling point we're, taking steps to do more dynamic scheduling of the special use airspace, and we're implementing a computer network starting with Albuquerque, Jacksonville and Los Angeles centers which will feed schedule and use data back to our central flow facility that ultimately will enable more as well as tracking actual use.

We are working with the military, we have military people on our staff. They have to build the credibility with each other that we can get the airspace dynamically and also return it the same way when they need it fast.

Mr. CARR. Was there any discussion in that study about reconfiguring some of the airspace?

Mr. POLLARD. I don't think so. I think there was some intent, but I don't think it got to that level.

[Additional information follows:]

The study did not discuss reconfiguration of any specific airspace areas. The report recommended that DOD publish an airspace master plan and a one-time review be conducted to assess the effectiveness and efficiency of existing restricted, military operations areas and warning areas. DOD is currently conducting studies which will be used to develop airspace plans. We are also working on a review as recommended by the report. These efforts could ultimately result in some reconfigurations.

Mr. CARR. It didn't get that far? That issue came up with me a couple of years ago around Eglin. There was a proposal for a new airport down in the Eglin area, and the issue came up at the time.

Mr. POLLARD. I wasn't in here at that time. I do vaguely remember the issue. We have one of those issues usually in Florida or North Carolina about every other year. But I think that had to do with establishment of an airport, if I recall.

[Additional information follows:]

The proposed Emerald Coast Regional Airport has been approved by the FAA as a visual flight rules only, public use airport. The proximity of the proposed airport site to the Eglin AFB restricted areas precluded approval of the airport for instrument operations because of the conflict between airspace needed for the instrument approach procedures and restricted areas was considered but was not pursued due to continuing DOD needs in the Eglin complex. It should be noted that the U.S. Air Force has extended the lease for joint use of Eglin AFB through the year 2010.

COMPUTER RESOURCES NUCLEUS

Mr. CARR. You were in the room the other day, I observed, when I asked lots of questions on CORN.

Admiral BUSEY. Yes, sir.

Mr. CARR. Can't you figure a better acronym?

Admiral BUSEY. My reaction exactly. I agree with you that a better acronym may make sense. That may be part of our implementation strategy that we have to look at.

We talked about CORN at length this morning, Mr. Carr, and I explained how perplexed I was because this was the only issue over which I find the FAA diametrically opposed to the GAO findings. We think they're wrong, and I recognize that I have a very short period of time to try to resolve this issue.

I'm going to try to get a third party in, a disinterested third party, a group of experts, that can help in my mind settle these diametrically opposed things so that we can get on with it because we've been in this procurement process for three years. It's a new and innovative way of doing business, as you've described yesterday, as you've recognized. We think we're on the right track.

We need the services. I want to move out, but I'm reluctant because of this strong opposition. I want to try to make some of those unknown known in a short period of time so we can either get on with it or change course and try something different.

Mr. CARR. Well, what I got—I thought it was a productive hearing yesterday once you sort of weeded through some of the stuff. What I took away from it was that you may have to work a little harder on the justification side, and in particular, tell us how this is going to save us money. This member of the committee is interested in saving money as well as spending it, and if you can show that it's a good investment, I think the committee is going to support you. But GAO kind of told you that you need to do a better job in putting that cost analysis in front of us. I pledge to work with you on the thing; I haven't made up my mind whether it's a good idea or a bad idea, but I think we need some more information on how we make our investments.

I just have a couple—Mr. Chairman, this is directed mainly to you. I could chew up another two days asking questions about Denver airport, and I'd rather not do that. Maybe we could have a stand only hearing at some point dealing with that major item. I don't know what you've got planned there.

LETTERS OF INTENT

Mr. LEHMAN. I think, Bob, that you should ask these questions now no matter how long it takes because we have this request for us to approve a letter of intent. Sooner or later, we have to make a decision on this letter, and we shouldn't delay too much longer. I think now is the time, if it takes the rest of the afternoon.

Mr. **Carr**. Well, with all due respect, I don't think so. Because I think there are other parties that need to be heard from and not just our administrator.

Mr. **Lehman**. We can talk about that anytime you want to. But as you well know, we have a request from the Secretary.

Mr. **Carr**. Well, with all due respect to the Secretary, I don't think we ought to be in the business of approving letters of intent. The Administration can write whatever letter they want to whoever they want to write it to. I don't think we need to get into the position of endorsing or not endorsing them, just take them for what they are.

I read the letter of intent, and it clearly says that the letter of intent doesn't supersede authorizations and appropriations, and this Committee is about half that equation, and we'll do what we do when we do it, I guess. Anyway.

And just one comment about PFCs, I guess, this is really a question, but I feel a real urge to put something on the record here. I'm a big fan of deregulation of the airlines, and there have been some problems with it, I'm not oblivious to that, but I think it was the best decision that we made in aviation and I'd like to see it continue.

I actually see your proposal for PFCs as undercutting deregulation, because in my mind, anyway, what deregulation was all about was the market place. And that means that you put market place type discipline into the aviation economy and FAA regulatory discipline on the safety side. And PFCs, to me, are an end run on the existing way of doing business, which is basically that the airports can charge the airlines for their gates and their concessions and whatever they want to charge, and then that gets folded into the price structure. That becomes then part of the market decision.

And I think PFCs circumvent that market discipline. I wouldn't feel so badly about it, I guess, if the PFCs were replaced by some other kind of discipline, but I don't see that happening. Normally, you'd have the discipline of the voter and the elected official, but when you get to charge everybody from out of town, that's a real easy tax to put on, and I don't see any discipline in the political process on the public side.

So I know you're probably hard and fast on this one, but I just felt that I wanted to let you know that I wasn't a big fan of PFC. And thank you for being here.

CONTROLLER MORALE

Mr. **Lehman**. Thank you, Mr. Carr. I made a remark about morale among the air traffic controllers that I want to be sure is not misinterpreted. I was talking generically about an SOB in charge, whether it involves a public school building or an automobile dealership.

Admiral **Busey**. Yes, sir. I understood it that way.

JUSTIFICATIONS—ORGANIZATIONAL CHANGES

Mr. **Lehman**. Justifications. I believe you have made a number of organization changes beyond those reflected on your chart on page 1. Would you explain these and tell us why they were required?

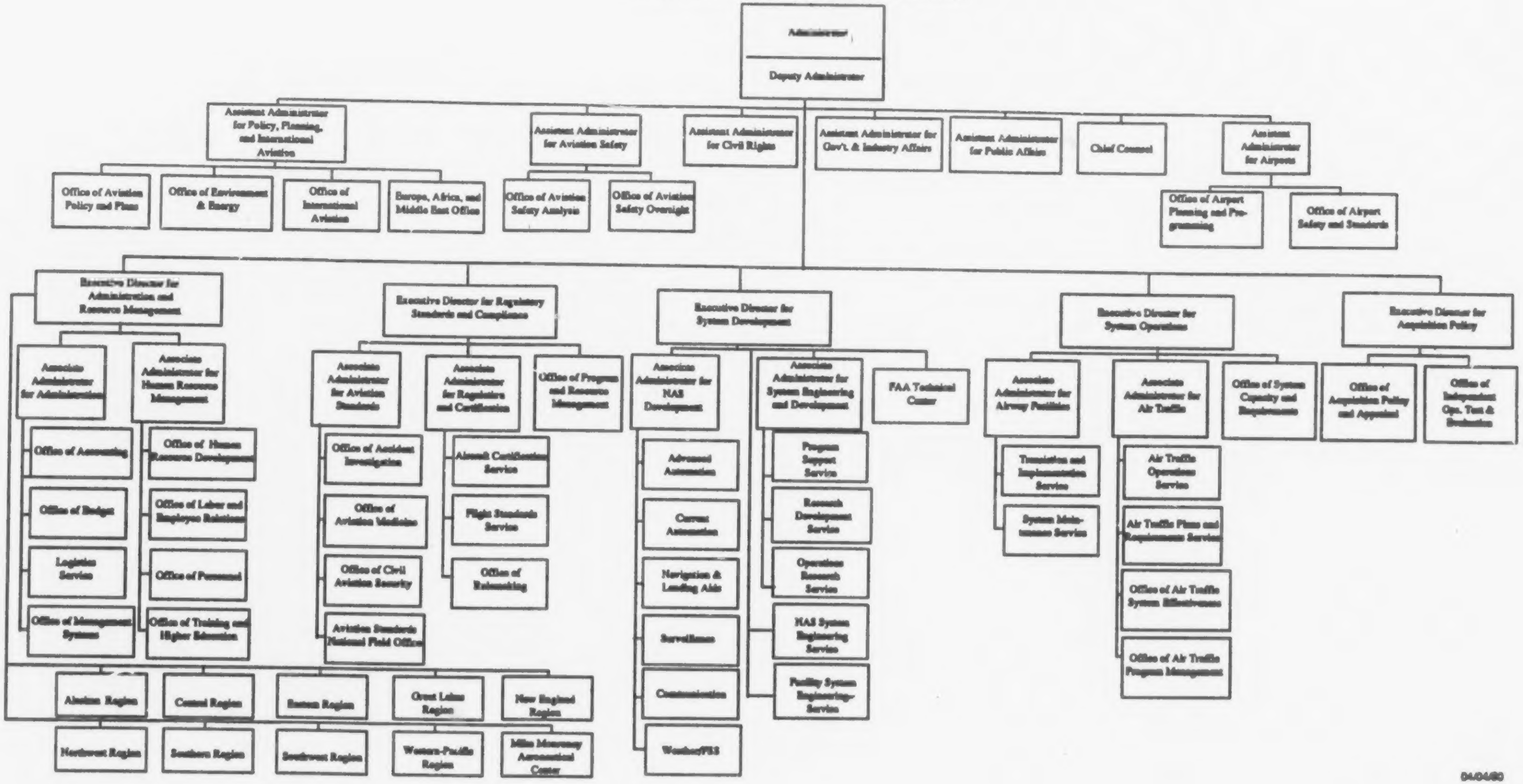
Admiral **Busey**. The organizational chart changes that I have made have been basically the creation of a new executive director, the so-called acquisition czar. I've also moved the associate administrator for airports, Mr. Griggs, out from under one of the executive directorates. He reports directly to me now as an assistant administrator.

Similarly, I have moved the former associate administrator for policy and international out from under an executive director and he also reports directly to me as an associate administrator. Then there have been internal changes in the development directorate involving the strengthening of the program managers. So those are the changes that have been made from the organizational chart. And if you desire, sir, we can submit an updated organizational chart for the record.

[The information follows:]

U. S. Department of Transportation

FEDERAL AVIATION ADMINISTRATION


Administrator
Deputy Administrator
Assistant Administrator for Policy, Planning, and International Aviation
Office of Aviation Policy and Plans
Office of Environment & Energy
Office of International Aviation
Europe, Africa, and Middle East Office
Assistant Administrator for Aviation Safety
Office of Aviation Safety Analysis
Office of Aviation Safety Oversight
Assistant Administrator for Civil Rights
Assistant Administrator for Gov't. & Industry Affairs
Assistant Administrator for Public Affairs
Chief Counsel
Assistant Administrator for Airports
Office of Airport Planning and Programming
Office of Airport Safety and Standards
Executive Director for Administration and Resource Management
Associate Administrator for Administration
Office of Accounting
Office of Budget
Logistics Service
Office of Management Systems
Associate Administrator for Human Resource Management
Office of Human Resource Development
Office of Labor and Employee Relations
Office of Personnel
Office of Training and Higher Education
Alaskan Region
Central Region
Eastern Region
Great Lakes Region
New England Region
Northwest Region
Southern Region
Southwest Region
Western-Pacific Region
Mike Monroney Aeronautical Center
Executive Director for Regulatory Standards and Compliance
Associate Administrator for Aviation Standards
Office of Accident Investigation
Office of Aviation Medicine
Office of Civil Aviation Security
Aviation Standards National Field Office
Associate Administrator for Regulation and Certification
Aircraft Certification Service
Flight Standards Service
Office of Rulemaking
Office of Program and Resource Management
Executive Director for System Development
Associate Administrator for NAS Development
Advanced Automation
Current Automation
Navigation & Landing Aids
Surveillance
Communication
Weather/FSS
Associate Administrator for System Engineering and Development
Program Support Service
Research Development Service
Operations Research Service
NAS System Engineering Service
Facility System Engineering Service
FAA Technical Center
Executive Director for System Operations
Associate Administrator for Airway Facilities
Translation and Implementation Service
System Maintenance Service
Associate Administrator for Air Traffic
Air Traffic Operations Service
Air Traffic Plans and Requirements Service
Office of Air Traffic System Effectiveness
Office of Air Traffic Program Management
Office of System Capacity and Requirements
Executive Director for Acquisition Policy
Office of Acquisition Policy and Appraisal
Office of Independent Ops. Test & Evaluation
04/04/90

POSITION LEVELS

Mr. LEHMAN. Would you indicate for the record the number of positions assigned to each of the offices and regions shown on page 1 for fiscal years 1989, 1990 and 1991?

[The information follows:]

FAA DISTRIBUTION OF POSITIONS
(DIRECT - FULL TIME PERMANENT)

Office	FY 1989	FY 1990	FY 1991
ADMINISTRATOR	54	54	55
A) Associate Administrator for Aviation Safety	14	14	14
1) Office of Aviation Safety Analysis	16	16	16
2) Office of Aviation Safety Oversight	29	33	34
B) Office of the Chief Counsel	111	122	122
C) Office of Civil Rights	13	13	14
D) Office of Government & Industry Affairs	13	13	13
E) Office of Public Affairs	29	29	32
1. Executive Director for Policy, Plans, & Resource Management	5	5	5
A) Associate Administrator for Administration	4	7	11
1) Office of Accounting	66	73	76
2) Office of Budget	49	52	59
3) Logistics Service	163	192	174
4) Office of Mgmt. Systems	99	102	106
B) Associate Administrator for Human Resource Management	214	249	250
C) Associate Administrator for Police, Planning, & International Aviation	136	136	131
2. Executive Director for Regulatory Standards and Compliance	5	5	5

A) Associate Administrator for Aviation Standards	3	3	3
1) Office of Accident Investigation	19	19	19
2) Office of Aviation Medicine	43	43	43
3) Office of Civil Aviation Security	87	87	87
4) Aviation Standards National Field Office	887	977	1,024
B) Associate Administrator for Regulation and Certification	4	4	4
1. Aircraft Certification Service	92	98	113
2. Flight Standards Service	239	300	353
3. Office of Rulemaking	27	27	27
C) Office of Programs and Resource Mgmt	65	68	68
3. Executive Director for Systems Development	5	5	5
A) Associate Administrator for Airports	89	98	98
B) Associate Administrator for NAS Development	85	89	30
FAA Technical Center	589	594	594
C) Associate Administrator for Adv. Design & Management Control	41	41	51
4. Executive Director for Systems Operations	5	5	5
A) Associate Administrator for Airway Facilities	266	310	253
B) Associate Administrator for Air Traffic	415	494	575
Office of Operations Resource Mgmt	8	8	8
Office of Operations Planning & Policy	8	8	8
Regions			
New England Region	2,005	2,066	2,127
Eastern Region	5,520	5,622	5,754
Southern Region	8,127	8,501	8,655

Southwest Region	5,680	5,766	5,860
Great Lakes Region	6,902	7,069	7,193
Central Region	2,753	2,792	2,854
Northwest Mountain Region	4,412	4,504	4,568
Western-Pacific Region	5,695	5,983	6,139
Alaskan Region	1,366	1,456	1,468
Aeronautical Center	2,017	2,044	2,059
TOTAL:	48,474	50,196	51,162

NOTE: The distribution by office is in a state of flux as organizational adjustments are being fully implemented.

EMPLOYMENT LEVELS

Mr. **Lehman**. Would you provide for the record a table similar to the one on page 408 of last year's hearing record, indicating, by appropriation, your September 30, 1989, employment, present employment, authorized positions for 1990 and 1991 and your estimated end-of-year employment for fiscal years 1990 and 1991?

[The information follows:]

FEDERAL AVIATION ADMINISTRATION FULL-TIME PERMANENT POSITIONS—YEAR END EMPLOYMENT—FISCAL YEARS 1989–91

	Actual employment		Fiscal year 1990 estimate		Fiscal year 1991 estimate	
	Sept. 30, 1989	Mar. 31, 1990	FTP positions	Year-end employment	FTP positions	Year-end employment
Operations	47,197	47,486	50,196	48,422	51,162	49,498
Aviation Insurance Revolving Fund	2	2	2	2	2	2
Facilities and Equipment (Airport and Airway Trust Fund)	1,276	1,293	1,368	1,313	1,743	1,656
Research Engineering and Development (Airport and Airway Trust Fund)	598	600	645	613	668	635
Subtotal Direct	49,073	49,381	52,211	50,350	53,575	51,791
(General Fund)	(47,199)	(47,488)	(50,198)	(48,424)	(51,164)	(49,500)
(Trust Fund)	(1,874)	(1,893)	(2,013)	(1,926)	(2,411)	(2,291)
Reimbursements	415	424	559	486	561	561
Total FAA	49,488	49,805	52,770	50,836	54,136	52,352

POSITION LEVELS

Mr. **Lehman**. Would you also indicate for each activity, as on page 410 of last year's hearing, the fiscal years 1989 and 1990 position level shown in your 1990 budget, the fiscal year 1990 level approved by Congress and the fiscal year 1990 level shown in your 1991 budget?

[The information follows:]

OPERATIONS APPROPRIATION

[Full-time permanent positions]

	Fiscal year 1990—Congressional			1990—fiscal year 1991 congressional
	1989	1990	1990 approved by Congress	
Air traffic	27,150	28,026	27,960	27,933
NAS system logistics support	1,481	1,561	1,525	1,525
System maintenance	10,454	10,454	10,454	10,445
Aviation standards	6,059	6,791	6,755	6,673
Development direction	136	143	143	140
Airports	472	515	515	521
Human resource management	1,256	1,460	1,380	1,398
Direction, staff and support	946	1,067	1,067	1,166
Headquarters administration	520	397	397	395
Total	48,474	50,414	50,196	50,196

WORKLOAD INDICATORS

Mr. LEHMAN. Would you indicate for the record the table on workload indicators which was included on page 411 of last year's hearing?

[The information follows:]

WORKLOAD INDICATORS AND INDUSTRY TRENDS

Fiscal Year	1988	1989	1990	1991
Forecast Made in February 1986:				
Aviation Fuel Consumption (Billions of gallons)	12.5	12.9	13.2	13.5
Revenue Passenger-Miles (Billions)1/	389.2	408.9	422.6	448.6
General Aviation Hours Flown (Millions)	39.1	40.6	42.0	43.3
IFR Aircraft Handled (Millions)	36.1	37.2	38.4	39.4
Total Operations at Airports with FAA Towers (Millions)	63.9	66.1	68.5	70.9
Instrument Operations Handled by FAA Towers (Millions)	43.8	45.7	47.3	48.5
Forecast Made in February 1987:				
Aviation Fuel Consumption (Billions of gallons)	13.3	13.7	14.1	14.5
Revenue Passenger-Miles (Billions)1/	407.7	418.4	443.4	468.0
General Aviation Hours Flown (Millions)	33.7	33.7	34.0	34.1
IFR Aircraft Handled (Millions)	36.6	37.6	38.7	39.6
Total Operations at Airports with FAA Towers (Millions)	62.3	64.1	65.7	67.3
Instrument Operations Handled by FAA Towers (Millions)	43.0	44.2	45.4	46.4
Forecast Made in February 1988:				
Aviation Fuel Consumption (Billions of gallons)	13.0	13.5	13.9	14.3
Revenue Passenger-Miles (Billions)1/	415.3	433.3	454.6	486.3
General Aviation Hours Flown (Millions)	34.4	34.3	34.5	34.7
IFR Aircraft Handled (Millions)	37.0	38.0	39.2	40.3
Total Operations at Airports with FAA Towers (Millions)	62.7	64.4	66.1	67.7
Instrument Operations Handled by FAA Towers (Millions)	45.4	47.2	49.1	50.7
Forecast Made in March 1989:	Actual (P)			
Aviation Fuel Consumption (Billions of gallons)	13.0	13.2	13.6	14.0
Revenue Passenger-Miles (Billions)1/	420.2	441.8	460.5	489.3
General Aviation Hours Flown (Millions)	33.6	34.0	34.4	35.0
IFR Aircraft Handled (Millions)	36.2	37.2	38.2	39.7
Total Operations at Airports with FAA Towers (Millions)	61.2	62.7	64.0	65.8
Instrument Operations Handled by FAA Towers (Millions)	44.2	45.8	47.7	49.5
Forecast Made in March 1990:	Actual	Actual (P)		
Aviation Fuel Consumption (Billions of gallons)	13.0	13.2	13.8	14.2
Revenue Passenger-Miles (Billions)1/	420.4	433.8	456.7	483.2
General Aviation Hours Flown (Millions)	33.5	33.9	34.0	34.5
IFR Aircraft Handled (Millions)	36.4	36.6	37.8	39.1
Total Operations at Airports with FAA Towers (Millions)	61.3	61.4	62.8	64.5
Instrument Operations Handled by FAA Towers (Millions)	44.5	45.0	46.4	48.0

1/ Total System, Domestic Plus International Scheduled Revenue Passenger-Miles
P/ Preliminary

NATIONAL DEFENSE EXPENDITURES

Mr. LEHMAN. Last year, it was indicated that approximately 11 percent of your budget is allocated to national defense. Do you expect this percentage to remain relatively constant through fiscal year 1991?

[The information follows:]

Yes. Our latest cost allocation studies show that about 10.2 percent of FAA's costs will result from military operations by 1992, and that percentage is expected to slowly decrease to about 8.7 percent by 1997.

ADVISORY COMMITTEES

Mr. LEHMAN. Would you update for the record the information on advisory committees which was included on page 412 of last year's hearing?

[The information follows:]

ADVISORY COMMITTEES [1]

[FAA has 3 operating advisory committees]

Name	Purpose	Fiscal year 1991 estimate
Radio Technical Commission Aeronautics	Advances the art and science of aeronautics through the investigation of all available or potential applications of the telecommunication art, their coordination with allied arts, and the adaption thereof to recognized operational requirements..	$180,000
Air Traffic Procedures	Reviews all air traffic control procedures and practices	19,000
Research, Engineering, and Development Advisory Committee.	Provides advice on the needs, objectives, plans, and accomplishments concerning aviation research. The committee will consider aviation research needs in the area of airport capacity, system, aircraft safety, aeromedical research, aviation security, future technology, and the National Airspace System.	190,000
Total		389,000

[1] FAA participation on advisory committee is approximately 2 employee-years.

WORKLOAD INDICATORS

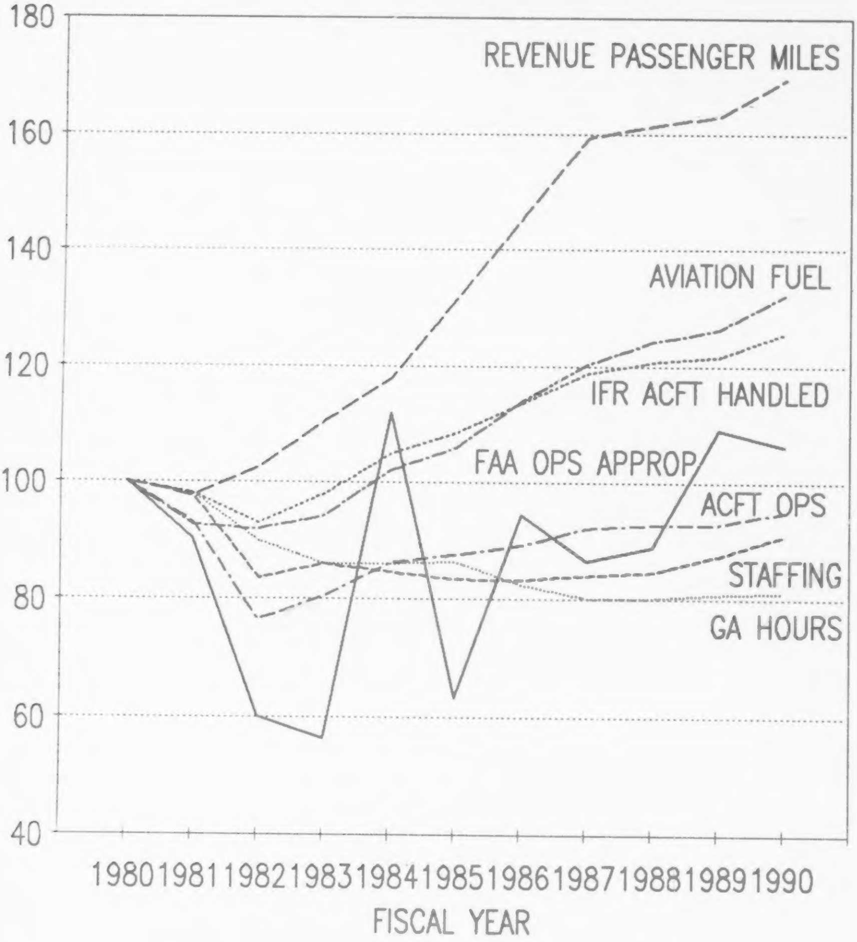
Mr. LEHMAN. Last year, you projected fiscal year 1990 general aviation hours flown to be 34.4 million and IFR operations handled by FAA towers to be 48.0 million. What are your current projections for fiscal year 1990 for each of these workload indicators?

Mr. MCDANIEL. Our current projections for fiscal year 1990, Mr. Chairman, for general aviation hours flown: 34.0 million; for IFR operations handled by FAA towers, 46.4 million.

Mr. LEHMAN. Would you insert a chart similar to that on page 7 of your justifications showing FAA funding in constant dollars along with the other workload indicators for fiscal years 1980 through 1990?

[The information follows:]

INDEXES OF COMPARATIVE RATES OF GROWTH
FAA FUNDING AND REPRESENTATIVE AVIATION ACTIVITY MEASURES
1980 - 1990
(FISCAL YEAR 1980 = 100)



FAA operations appropriation index is based on constant 1982 dollars.

FAA staffing index is inclusive of authorized full-time and reimbursable positions.

ACCIDENT AND FATALITY RATES

Mr. LEHMAN. Would you update the tables contained on pages 415 and 416 of last year's hearing showing accident and fatality rates for the past ten years?

[The information follows:]

TABLE 1
ACCIDENTS, FATALITIES, AND RATES
AIR CARRIERS AND GENERAL AVIATION
1989 (PRELIMINARY DATA)

						Accident Rates			
	Accidents					Per 100,000 Aircraft Hours		Per 100,000 Departures	
	Total	Fatal	Total Fatalities	Aircraft Hours Flown	Departures	Total	Fatal	Total	Fatal
Air Carriers Operating Under 14 CFR 121									
Scheduled @	24	8	131	10,440,000	7,315,000	0.230	0.077	0.328	0.109
Nonscheduled	4	3	147	610,000	310,800	0.656	0.492	1.290	0.968
Air Carriers Operating Under 14 CFR 135									
Scheduled #	18	5	31	2,040,000	2,900,000	0.882	0.245	0.621	0.172
Nonscheduled	110	23	80	2,870,000	*	3.83	0.80	--	--
General Aviation +	2167	420	763	29,900,000	*	7.25	1.40	--	--

Exposure data estimate source: Federal Aviation Administration (FAA).

@ One suspected sabotage accident excluded from total and fatal accident rates.

# Rates are based on all accidents, including those involving operators not reporting traffic data to the Research and Special Programs Administration (RSPA).

* Data not available.

+ Includes accidents involving U.S. registered civil aircraft flown under rules other than 14 CFR 121 and 14 CFR 135.

TABLE 2
ACCIDENTS, FATALITIES, AND RATES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 121
ALL SCHEDULED SERVICE
(AIRLINES *)
1979 - 1989

								Accident Rates@					
								Per Million Aircraft Miles		Per 100,000 Aircraft Hours		Per 100,000 Departures	
	Accidents		Fatalities		Aircraft	Aircraft							
Year	Total	Fatal	Total	Aboard	Miles Flown#	Hours Flown#	Departures#	Total	Fatal	Total	Fatal	Total	Fatal
1979	23	4	351	348	2,791,120,000	6,713,094	5,399,652	0.0082	0.0014	0.343	0.060	0.426	0.074
1980	15	0	0	0	2,928,955,000	7,069,481	5,567,044	0.0051	0.	0.212	0.	0.269	0.
1981	25	4	4	2	2,811,348,000	6,834,140	5,420,342	0.0089	0.0014	0.366	0.059	0.461	0.074
1982	16	4	234	222	2,806,885,000	6,697,770	5,162,346	0.0053	0.0011	0.224	0.065	0.291	0.058
1983	22	4	15	14	2,920,909,000	6,914,969	5,235,262	0.0075	0.0014	0.318	0.058	0.420	0.076
1984	13	1	4	4	3,258,910,000	7,736,037	5,666,076	0.0040	0.0003	0.168	0.013	0.229	0.018
1985	17	4	197	196	3,452,753,000	8,265,332	6,068,893	0.0049	0.0012	0.206	0.048	0.280	0.066
1986	21	2	5	4	3,866,880,652	9,444,636	6,976,480	0.0052	0.0003	0.212	0.011	0.287	0.014
1987	32	4	231	229	4,103,742,276	10,015,784	7,199,402	0.0076	0.0007	0.310	0.030	0.431	0.042
1988	31	3	285	274	4,261,010,670	10,427,959	7,288,260	0.0070	0.0005	0.288	0.019	0.412	0.027
1989P	24	8	131	130	4,325,000,000	10,440,000	7,315,000	0.0055	0.0018	0.230	0.077	0.328	0.109

P Preliminary data.

* Includes accidents involving deregulated all cargo air carriers and commerical operators of large aircraft when those accidents occurred during 14 CFR 121 operations.

# Source of estimate: FAA.

@ The following suicide/sabotage cases are included in "Accidents" and "Fatalities" but not in "Accident Rates":

			Fatalities	
Date	Location	Operator	Total	Aboard
8/11/82	Honolulu, HI	Pan American	1	1
4/02/86	Near Athens, Greece	Trans World	4	4
12/07/87	San Luis Obispo, CA	Pacific Southwest	43	43
12/21/88	Lockerbie, Scotland	Pan American	270	259

TABLE 3
ACCIDENTS, FATALITIES, AND RATES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 121
ALL NONSCHEDULED SERVICE
(AIRLINES *)
1979 - 1989

	Accidents		Fatalities					Accident Rates					
								Per Million Aircraft Miles		Per 100,000 Aircraft Hours		Per 100,000 Departures	
Year	Total	Fatal	Total	Aboard	Aircraft Miles Flown#	Aircraft Hours Flown#	Departures#	Total	Fatal	Total	Fatal	Total	Fatal
1979	6	1	3	3	68,018,000	165,817	86,550	0.0882	0.0147	3.618	0.603	6.932	1.155
1980	4	1	1	0	114,867,000	310,100	162,364	0.0348	0.0087	1.290	0.322	2.464	0.616
1981	1	0	0	0	109,449,000	291,558	154,537	0.0091	0.	0.343	0.	0.647	0.
1982	4	1	1	1	131,628,000	342,555	188,787	0.0304	0.0076	1.168	0.292	2.119	0.530
1983	2	0	0	0	148,409,000	383,830	209,112	0.0135	0.	0.521	0.	0.956	0.
1984	4	0	0	0	169,153,000	429,087	232,776	0.0236	0.	0.932	0.	1.718	0.
1985	5	3	329	329	178,264,000	444,562	237,866	0.0280	0.0168	1.125	0.675	2.102	1.261
1986	3	1	3	3	186,845,584	473,553	270,920	0.0161	0.0054	0.634	0.211	1.107	0.369
1987	4	1	1	1	230,789,886	518,416	304,566	0.0173	0.0043	0.772	0.193	1.313	0.328
1988	1	0	0	0	238,617,366	570,451	302,018	0.0042	0.	0.175	0.	0.331	0.
1989P	4	3	147	146	242,000,000	610,000	310,000	0.0165	0.0124	0.656	0.492	1.290	0.968

P Preliminary data.

* Includes accidents involving deregulated all cargo air carriers and commerical operators of large aircraft when those accidents occurred during 14 CFR 121 operations.

# Source of estimate: FAA.

TABLE 4
ACCIDENTS, FATALITIES, AND RATES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 135
ALL SCHEDULED SERVICE
(COMMUTER AIR CARRIERS *)
1979 - 1989

								Accident Rates+					
	Accidents		Fatalities					Per Million Aircraft Miles		Per 100,000 Aircraft Hours		Per 100,000 Departures	
Year	Total	Fatal	Total	Aboard	Aircraft Miles Flown#	Aircraft Hours Flown#	Departures#	Total	Fatal	Total	Fatal	Total	Fatal
1979	52	15	66	66	192,493,000	1,169,921	1,883,705	0.270	0.078	4.445	1.282	2.761	0.796
1980	38	8	37	37	192,200,000	1,175,588	1,776,999	0.198	0.042	3.232	0.681	2.138	0.450
1981	31	9	34	32	193,001,000	1,240,764	1,835,144	0.161	0.047	2.498	0.725	1.689	0.490
1982	26	5	14	14	222,355,000	1,299,748	2,026,691	0.117	0.022	2.000	0.385	1.283	0.247
1983	17	2	11	10	253,572,000	1,510,908	2,328,430	0.067	0.008	1.125	0.132	0.730	0.086
1984	22	7	48	46	291,460,000	1,745,762	2,676,590	0.075	0.024	1.260	0.401	0.822	0.262
1985	21	7	37	36	300,817,000	1,737,106	2,561,463	0.070	0.023	1.209	0.403	0.820	0.273
1986	15	2	4	4	308,147,340	1,723,034	2,707,593	0.049	0.006	0.871	0.116	0.554	0.074
1987	32	10	59	57	350,089,201	1,946,260	2,847,786	0.091	0.029	1.644	0.514	1.124	0.351
1988	19	2	21	21	376,760,027	2,036,974	2,904,192	0.050	0.005	0.933	0.098	0.654	0.069
1989P	18	5	31	31	380,000,000	2,040,000	2,900,000	0.047	0.013	0.882	0.245	0.621	0.172

P Preliminary data.

Source of estimate: FAA.

+ Rates are based on all accidents including some involving operators not reporting traffic data to RSPA.

*. Includes accidents involving all-cargo air carriers when those accidents occurred during scheduled 14 CFR 135 operations. All-cargo air carriers no longer meet the RSPA definition for "Commuters". May also include accidents involving carriers whose FAA operating specifications permit scheduled revenue operations under 14 CFR 135, but who have not received a RSPA fitness determination.

TABLE 5
ACCIDENTS, FATALITIES, AND RATES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 135
NONSCHEDULED OPERATIONS
(ON-DEMAND AIR TAXIS)
1979 - 1989

Year	Accidents		Fatalities		Aircraft Hours Flown#	Accident Rates Per 100,000 Aircraft Hours	
	Total	Fatal	Total	Aboard		Total	Fatal
1979	160	30	77	73	3,684,321	4.34	0.81
1980	171	46	105	101	3,617,724	4.73	1.27
1981	157	40	94	92	2,895,827	5.42	1.38
1982	132	31	72	72	3,256,763	4.05	0.95
1983	141	27	62	57	2,574,883	5.48	1.05
1984	146	23	52	52	3,079,007	4.74	0.75
1985	152	35	76	75	2,782,696	5.46	1.26
1986	116	31	65	61	2,913,358	3.98	1.06
1987	98	30	65	63	2,877,002	3.41	1.04
1988P	98	27	58		2,841,717	3.45	0.95
1989P	110	23	80		2,870,000	3.83	0.80

P Preliminary data.

Source of estimate: FAA.

TABLE 6
ACCIDENTS, FATALITIES, AND RATES
U.S. GENERAL AVIATION *
1979 - 1989

Year	Accidents		Fatalities		Aircraft Hours Flown#	Accident Rates Per 100,000 Aircraft Hours&	
	Total	Fatal	Total	Aboard		Total	Fatal
1979	3818	631	1221	1203	38,641,000	9.88	1.63
1980	3590	618	1239	1230	36,402,000	9.86	1.69
1981	3500	654	1282	1261	36,803,000	9.51	1.78
1982	3233	591	1187	1171	32,095,000	10.06	1.84
1983	3075	555	1064	1057	31,048,000	9.90	1.79
1984	3011	543	1039	1018	31,510,000	9.55	1.72
1985	2741	497	950	939	30,590,000	8.95	1.62
1986	2580	473	965	876	29,317,000	8.80	1.61
1987	2468	433	811	795	29,208,000	8.45	1.48
1988P	2363	449	781		29,633,584	7.97	1.52
1989P	2167	420	763		29,900,000	7.25	1.40

P Preliminary data.

# Source of estimate: FAA.

* All operations other than those conducted under 14 CFR 121 or 14 CFR 135.

& Suicide and sabotage accidents excluded from rates as follows:
Total - 1980 (1), 1982 (3), 1983 (1), 1984 (3), 1985 (3), 1987 (1), 1988 (1), 1989 (2)
Fatal - 1980 (1), 1984 (2), 1985 (2), 1987 (1), 1989 (1)

TABLE 7

FATAL ACCIDENTS AND FATALITIES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 121
ALL SCHEDULED SERVICE
(AIRLINES)
1989 (PRELIMINARY DATA)

					Fatalities					
Date	Location	Operator	Service	Aircraft	Psgr	Crew	Other	Total	Total Aboard	Reported Type of Accident
2/09	Lubbock, TX	Evergreen, Intl	Cargo	M/D DC-9	0	1	0	1	2	Pilot was incapacitated while inspecting cargo bay.
2/19	Puchong, Malaysia	Flying Tigers	Cargo	B-747-200	0	4	0	4	4	Crashed while landing.
2/24	Honolulu, HI	United Airlines	Psgr	B-747-122	9	0	0	9	355	10 by 40 foot section of fuselage tore away in flight.
3/18	Saginaw, TX	Evergreen, Intl	Cargo	M/D DC-9	0	2	0	2	2	Crashed during emergency landing.
7/12	San Juan, PR	American Airlines	Psgr	Airbus A300-600ER	0	0	1	1	244	Ramp worker was run over while aircraft was being pushed back from gate.
7/19	Sioux City, IA	United Airlines	Psgr	M/D DC-10	110	1	0	111	296	Crashed during emergency landing after loss of engine and hydraulic system.
9/20	Flushing, NY	USAir	Psgr	B-737-400	2	0	0	2	63	Aircraft departed the end of the runway following an aborted takeoff.
12/27	Miami, FL	Eastern Airlines	Psgr	B-727	1	0	0	1	54	Body found in aft airstair after arrival from Barbados.

TABLE 8
FATAL ACCIDENTS AND FATALITIES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 121
ALL NONSCHEDULED SERVICE
(AIRLINES)
1989 (PRELIMINARY DATA)

					Fatalities					
Date	Location	Operator	Service	Aircraft	Psgr	Crew	Other	Total	Total Aboard	Reported Type of Accident
2/08	Santa Maria, Azores	Independent Air	Psgr	B-707	137	7	0	144	144	Collided with terrain.
3/15	W Lafayette, IN	Mid Pacific Airlines	Cargo	Nihon YS-11A-600	0	2	0	2	2	Collided with terrain.
10/07	Orlando, FL	USAir	Psgr	M/D DC-9-31	0	0	1	1	107	Ramp worker was fatally injured when aircraft was struck by lightning while being pushed back from gate.

TABLE 9
FATAL ACCIDENTS AND FATALITIES
U.S. AIR CARRIERS OPERATING UNDER 14 CFR 135
ALL SCHEDULED SERVICE
(COMMUTER AIR CARRIERS)
1989 (PRELIMINARY DATA)

Date	Location	Operator	Service	Aircraft	Fatalities Psgr	Crew	Other	Total	Total Aboard	Reported Type of Accident
4/19	Pelican, AK	Channel Flying	Psgr/ Cargo	DeHavilland DHC-2 Beaver	1	1	0	2	2	Collided with terrain during IFR conditions.
7/30	Haines, AK	Skagway Air Service	Psgr	Piper PA-32-301	2	0	0	2	5	Collided with terrain during IFR conditions.
8/07	Nome, AK	Ryan Air Service	Psgr	Cessna 402	0	1	0	1	1	Collided with terrain during IFR conditions.
10/28	Halawa Bay, HI	Aloha Island Air	Psgr	DeHavilland DHC-6-300	18	2	0	20	20	Collided with terrain.
12/26	Pasco, WA	United Express	Psgr	British Aerospace Jetstream 31	4	2	0	6	6	Crashed during approach.

AIRBORNE HOURS

Mr. LEHMAN. Would you also update the table on hours flown that was included on page 416 of last year's hearing record?

[The information follows:]

AIRBORNE HOURS

Calendar year	Scheduled air carrier	General aviation
1982	6.7	32.1
1983	6.9	31.1
1984	7.7	31.5
1985	8.3	30.6
1986	9.4	29.3
1987	10.0	29.2
1988	10.4	29.6
1989 (estimate)	10.4	29.9
1990 (forecasted)	10.6	30.1
1991 (forecasted)	10.7	30.2

Source: 1982–1989 Air Carrier and General Aviation NTSB News Release dated Jan. 17, 1990. 1990–1991 FAA Forecasted.

CURRENT EMPLOYMENT

Mr. LEHMAN. On page 8, what is your current employment related to your 52,211 authorized full-time permanent positions?

[The information follows:]

Current employment

[Full-time permanent employment as of Mar. 31, 1990]

Operations (incl. headquarters admin.)	47,486
Facilities and equipment	1,293
Research, engineering and development	600
Aviation insurance	2
Reimbursable	425
Total full time perm. empl	49,806

OPERATIONS

Mr. LEHMAN. You are requesting $4,087,700,000 for operations with $2,846,000,000 of this amount to come from the Airport and Airway Trust Fund. How was this trust fund share determined?

[The information follows:]

The $2,846,000,000 was determined based on a goal of 85 percent recovery of FAA's total budget from the Airport and Airway Trust Fund. Cost allocation studies suggest that the cost of airport and airway service provided to civil aviation represent 85 percent of the FAA's total budget. We propose to finance the total cost of capital programs (AIP, F&E, RE&D) from the trust fund. In FY 1991, capital programs will represent 50.6 percent of the total FAA budget. This leaves an additional 34.4 percent of the total FAA budget—$2,846,000,000 of operations expenses—to be financed from the trust fund in order to achieve the 85 percent recovery goal.

RECEIPTS FROM PUBLIC AND PRIVATE SOURCES

Mr. LEHMAN. Under your proposed bill language, certain receipts may be credited to your operations appropriation. How much did you receive from these public and private sources in fiscal year 1989 and what are your estimates for 1990 and 1991?

[The information follows:]

The following reflects the total receipts received from public and private sources for processing aircraft registration and airmen certification during fiscal year 1989 and estimated receipts projected to be collected during fiscal years 1990 and 1991:

Fiscal year:	*Millions*
1989 (Actual)	$1.0
1990 (Estimated)	1.0
1990 (Estimated)	1.6

It has not yet been determined which of the receipts received from public and private sources will be credited to the Operations Appropriation during FY 1990 and 1991.

REEMPLOYED ANNUITANTS

Mr. LEHMAN. You are requesting that we reauthorize your reemployed annuitants program. Why do you believe you need to reestablish this program?

[The information follows:]

The FAA uses the reemployed annuitants in areas where there is a critical shortage of full performance controllers. Primarily the reemployed annuitants occupy staff positions and provide classroom training to developmental controllers, alleviating the need for full performance level controllers to perform these functions.

The loss of this authority will result in the loss of a ready trained resource that represents a savings in training and travel costs to the FAA and increased demands on the full performance level controller work force.

Mr. LEHMAN. Have you submitted legislation to the authorizing committee (Post Office and Civil Service) to accomplish this?

[The information follows:]

No. As mentioned yesterday (Wednesday, April 17, 1990), request to extend the authority to December 31, 1991, is part of the general appropriations for FY 1991. We will follow-up with the Post Office and Civil Service Subcommittee as suggested by Congressman Wolf.

Mr. LEHMAN. How many reemployed annuitants do you believe you could hire under this program?

[The information follows:]

The extended authority is not intended to hire new reemployed annuitants. Rather, this provision will continue the exemption for those reemployed annuitants already on board.

When this authority expired December 31, 1989, there were 132 reemployed annuitants actively engaged in the day-to-day operation of the air traffic system. As of 4/6/90 this number was 119.

Mr. LEHMAN. How much of the $10 million authorized to be transferred to cover the costs of this program was used during fiscal year 1989 and during the first quarter of fiscal year 1990?

[The information follows:]

FAA transferred $5.6 million in FY 1989 and $1.4 million in FY 1990 (first quarter only) from the $10 million authorized to cover costs of reemployed annuitants subject to the "no annuity offset" provision of 5 USC 8344 (h).

NONFEDERAL SOURCE COLLECTIONS

Mr. LEHMAN. On page 3, you are estimating fiscal year 1990 collections of $13.9 million from non-federal sources. How much did you collect during the first six months?

[The information follows:]

As of March 31, 1990, we collected $1.5 million from non-Federal sources and had accrued $3.9 million of payments due from foreign governments during the first six months of the year for a total of $5.4 million.

Mr. LEHMAN. What is the basis for your fiscal year 1991 estimate?

[The information follows:]

The FY 1991 level is based on current estimates of the level of reimbursable work to be performed in FY 1991 by the FAA. These estimates are collected from the regions and Washington offices during the budget preparation process.

FEDERAL EMPLOYEES RETIREMENT SYSTEM

Mr. LEHMAN. Last year, you indicated that your fiscal year 1990 federal employees retirement system costs would be about $100 million. Is this a valid estimate still?

Mr. STOER. Mr. Chairman, our current running estimate for this fiscal year is about $116 million.

Mr. LEHMAN. How much does your fiscal year 1991 budget include for FERS, what assumptions is this amount based on and what does your experience to date indicate regarding the validity of those assumptions?

[The information follows:]

FEDERAL EMPLOYMENT RETIREMENT SYSTEM

The FY 1991 Request includes an increase of $18 million for FERS. This is over an FY 1990 estimate of $116 million.

The FY 1990 estimate in the budget is based on costs associated with the current workforce. We believe our request is valid since we now have historical data to work from and the increase is in-line with the anticipated changes in the workforce. The increase assumes that no current CSRS employees will transfer from FERS and that all new hires will be FERS employees.

PERSONNEL COMPENSATION AND BENEFITS

Mr. LEHMAN. On page 6, you are requesting $250 million for "other personnel compensation". What's included?

Mr. STOER. That includes the cost of the 5 percent ATRA pay. It also includes the cost of the $61 million reimbursement we give to the Department of Labor. It includes our overtime and holiday pay and health benefits.

Mr. LEHMAN. You show an increase of about $113 million over fiscal year 1989 for civilian personnel benefits. Why do you need a 25 percent increase for personnel benefits in just two years?

Mr. STOER. That reflects several adjustments. First of all, we've had an increase of 2,688 people during that time frame. We've also introduced the pay demo. The pay demo costs are in effect now running at about $20 million annually. That was not in place two years ago. And also the increased costs of health benefits. Basically, the health benefits, the pay demo and the increased staffing all account for that increase.

TRAVEL COSTS

Mr. LEHMAN. That pay demo keeps popping up everywhere you turn.

Would you update for the record the table on travel costs that was included on page 420 of last year's hearing record, including a brief explanation of the changes?

[The information follows:]

TRAVEL AND TRANSPORTATION OF THINGS OPERATIONS APPROPRIATION

[In thousands of dollars]

	Fiscal year—		
	1989	1990	1991
Training travel	35,455	46,119	46,191
Job performance travel	26,962	26,281	27,505
Other travel	23,918	31,162	31,356
Transportaton of things	21,718	23,094	24,105
Total	108,053	126,656	129,157

Note: The increase from FY 1990 to FY 1991 is primarily due to inflation, change of station costs, training and job related travel, field facility evaluations and safety and efficiency reviews, and new training initiatives.

RENTAL PAYMENTS AND COSTS

Mr. LEHMAN. GSA rental payments are estimated to increase by $15.5 million, over 50 percent, from fiscal year 1989 to fiscal year 1991. How much additional GSA space do you expect to add during this same two-year period?

Mr. GOLDMAN. We expect to add around 500,000 square feet of space. The major part of that is a new regional headquarters for our southwest region, which is currently Government owned.

COMMUNICATION COSTS

Mr. LEHMAN. Also on page 6, last year you estimated your fiscal year 1990 costs for communications, utilities and miscellaneous charges would be $333 million. You now estimate these 1990 costs to be $305 million. How could you save $28 million?

Mr. STOER. Mr. Chairman, most of that represents some economies that we've saved through careful review of the more than $25 thousand individual circuits that we have, as well as deferral of some costs of hooking up new facilities where each new facility that we commission requires a dedicated line.

OTHER SERVICES SAVINGS

Mr. LEHMAN. Your original fiscal uear 1990 request for "other services" was $543 million compared with your current estimate of $429 million. What reductions were made under this category in the regular appropriations act and what additional reductions were required because of drug funding offsets, sequestration and pay cost absorption?

Mr. STOER. Mr. Chairman, that represents a reduction of about $114 million in contracts and of that, over half was associated with the reductions in the regular appropriations act. Some of the types of reductions that we've incurred include a significant reduction in our flight plan for training, reductions in certain maintenance contracts that we have, and special maintenance work that we do in the field. We've also had a reduction in some of the personal computer networks that we were going to install. There were a number of retrenchment activities, as well as some of the supporting contracts in our regulatory areas as well. We'll be happy to provide details for the record.

Mr. LEHMAN. Please provide a detailed listing of these savings for the record.

[The information follows:]

The decrease of $114 million represents a reduction in the appropriation, sequestration, and a shift of funds to cover absorption of pay costs. Reductions were made in the following areas:

	Millions
CORN and OATS contractor support	$6.3
Contract maintenance	2.0
ADP support	3.7
Contract tower program	1.4
Enroute modernization training	1.5
Radar simulation training	3.0
Procedures for NAS implementation	1.8
VFR pilot education program	1.5
Collection/dissemination of aeronautical information	1.8
Pilot maintenance	5.0
Special maintenance projects	4.3
Engineering support at Aeronautical/Technical Ctr.	7.9
Miscellaneous operational and contract support	37.1
Flight plan for training	30.0
Human relations program support	1.0
Enhancement of NAS performance	.9
Support for automated software	.8
Accounting improvements	.8
Operational position standard support	.6
Central altitude reservation function	.6
Quality assurance for software	.5
Automation procedure handbook update	.4
Local area network	.4
Software configuration	.4
Forecasting and regulatory analysis	.3

OTHER SERVICES BUDGET REQUEST

Mr. LEHMAN. Would you provide for the record a breakdown of your fiscal year 1991 request for "other services" similar to that on pages 428 and 429 of last year's hearing record, including the comparable amounts for fiscal years 1989 and 1990?

[The information follows:]

OTHER SERVICES
Operations Appropriations
FY 1991 Estimates
(Amounts in thousands)

	FY 1989 Actual	FY 1990 Column of the FY 1991 Congressional	FY 1991 Column of the FY 1991 Congressional	Difference FY 1991 over FY 1990
On-the-job training for flight inspection and procedures	1,453	1,569	1,706	137
Contract maintenance	599	465	467	2
Security investigations	381	585	644	59
Audio visual services	101	417	403	(14)
Contractual studies	9,332	12,236	11,733	(503)
USAF training of K-9 teams	367	367	712	345
Substance Abuse Program	235	1,446	2,645	1,199
Technical Center				
Sector opertations support contract	3,750	2,380	2,380	0
Other engineeering support	2,460	0	0	0
Operation of contract ATC Towers	3,716	3,738	4,527	789
Master labor contrat Tokyo	109	129	125	(4)
Flight inspection furnished by Iceland	99	67	69	2
JDL contract for personal services for clerical functions	388	306	318	12
Physical examinations	2,236	2,356	2,429	73
Aviation Safety Reporting Program	1,900	1,900	1,900	0
AAC -Engineering design and support	2,292	2,944	2,944	0
Automated datatron contract for Aircraft Registration Administration System (ARRAS)	619	403	418	15
Storage of households effects	2,812	3,156	3,705	549
Flight Service Automation Systems (FSAS)	1,296	1,346	1,346	0
Flight/nonflight training	346	419	461	42
Repair/maintenance administrative, operating, working, and test equipment	23	18	18	0
Overhaul of aircraft engines	2,682	3,450	3,579	129
Aircraft rental	5,386	6,436	6,556	120
Regulatory analysis	0	180	252	72
Aircraft routine inspection and repair/modifications	3,961	5,094	5,284	190
Repair, maintenance and inspection of equipment and buildings	15,129	15,039	16,276	1,237
NAS Supply Support	20,906	16,000	14,462	(1,538)
Aviation Safety Analysis System (ASAS)	9,077	8,670	8,696	26
Contractual time-sharing teleprocessing services	1,164	1,231	1,302	71
Leased Telecmmunicatons - Transportation Support Center	15,026	20,230	19,930	(300)
Flight training	11,414	14,435	15,879	1,444
A-76 contractual services	956	1,185	1,076	(109)
Contractual data processing services	25,482	25,280	25,926	646
Janitorial and guard services	14,552	13,588	15,283	1,695
Aeronautical charting sevices	9,824	10,216	11,643	1,427
Repair and maintenance of ADP equipment	8,540	8,176	8,316	140
Training initiatives contract services	28	215	1,146	931
Secure communications link	118	118	118	0
Automation support contract	5,740	7,760	8,135	375
Drug Modernization Project	0	0	879	879
Contractual training services	59,475	88,203	86,837	(1,366)

OTHER SERVICES
Operations Appropriations
FY 1991 Estimates
(Amounts in thousands)

	FY 1989 Actual	FY 1990 Column of the FY 1991 Congressional	FY 1991 Column of the FY 1991 Congressional	Difference FY 1991 over FY 1990
Supervisory Identification & Development Programs services....	450	930	900	(30)
Employee Involvement Program services..........................	0	778	0	(778)
Employee Assistance Program services...........................	231	312	319	7
Center Weather Srvices -FAA/NOAA...............................	5,031	6,186	6,489	303
Weather Observation Services...................................	10,000	14,850	18,409	3,559
Project SAFE...	435	495	510	15
Development of Flight Standards District Human Resource....... Management Guides...	104	104	104	0
NASIF inspections..	0	240	240	0
Society of Automotive Engineers................................	85	85	85	0
Medical clinic service for ARTCC's.............................	188	0	0	0
Federal Law Enforcement Training...............................	0	0	385	385
Project SMART..	848	705	740	35
Military handbooks...	160	160	160	0
Aircraft Obstruction Survey Program............................	2,840	3,511	3,625	114
Office of Automation Technology & Services (OATS)..............	0	0	1,221	1,221
Random drug testing..	3,500	3,700	4,000	300
Physical Exams...	6	5	5	0
Maintenance of Host Computer...................................	0	3,858	3,858	0
Maintenance of Integrated Communication Switching System......	9,300	12,150	12,150	0
Maintenance of CAEG..	0	1,100	1,100	0
Working Capital Fund...	1,009	1,617	1,617	0
National Airspace Info Monitoring Sys. (NAIMS).................	2,826	2,000	2,000	0
System Safety Efficiency Review (SSER).........................	725	800	800	0
Oversight Investigations/Analysis..............................	0	700	700	0
National Aviation Safety Data Center (NASDC)...................	800	700	700	0
Not otherwise classified.......................................	67,470	92,506	87,520	(4,986)
Total, Other Services..	349,986	429,245	438,162	8,917

CONTRACTUAL TRAINING SERVICES

Mr. LEHMAN. Last year, your fiscal year 1990 estimate for "other services" included $77 million for contractual training services. Please provide a list of each contract, including the contractor, purpose, amount and expiration date.

[The information follows:]

CONTRACTUAL TRAINING SERVICES
(dollars in thousands)

Contract	Contractor	Purpose	Amount	Expiration Date
Academy AT instruction	Oklahoma University	Conduct/dvlp AT Trng	$17,850	9/30/90
Academy AF instruction	Jordan-DeLaurenti	Conduct/dvlp AF Trng	1,030	7/31/92
Academy Av Stds Instr	Jordan-Delaurenti	Conduct/dvlp AVS Trng	2,720	8/21/91
Weather Instruction	Natl Oceanic/Atmos	Conduct/dvlp Wx Trng	670	N/A
CMD Instruction	Univ. Research Corp	Conduct/dvlp CMD Trng	2,930	7/30/92
Academy Instructor	Jordan/DeLaurenti	Conduct/dvlp BIT Trng	305	9/30/91
Academy Mgmt/Genl	Jorday/Delaurenti	Conduct General trng	300	1/30/90
Executive Dvlpmt	Local purchase (1)	Conduct Exec School	95	N/A
OJT Trng Dvlp/conduct	OPM Interagency	Dvlp/conduct OJT trng	1,000	9/30/91
Dvlp Trng for change	OPM Interagency	Develop culture chge trng	190	9/30/90
Region/center trng	Local purchase (1)	Provide region unique trng	2,000	N/A
Mgmt/Genl training	Local off-the-shelf(1)	Trng for FAA HDQ personnel	400	N/A
Mgmt Dvlpmt Study	Unknown	Identify new Mgmt Trng	300	9/30/90
Flight Instructors	Washington Consult Grp	In-House Flight trng	442	10/5/91
CBI Timeshare	TRADOC (Interagency)	Deliver CBI training	555	9/30/90
Dvlp CBI courseware	OPM Interagency	Dvlp AXR courses	300	9/30/90
Dvlp system reqmts	RMCI	Reqmts for TMIS	675	9/30/90
Dvlp PAPI trng	AVW Electric	New eqpt training	408	9/30/91
Dvlp AT curricula	Minnesota	Enroute AT curricula	3,400	9/30/90
Project SMART supt	OPM interagency	Airworthiness curricula	300	9/30/90
Project SAFE supt	OPM interagecny	A/C certification/maint	100	9/30/90
AF task analysis	OPM interagency	Identify trng required	100	N/A
AF curricula study	OPM interagency	Modernize AF training	100	N/A
AT cognitive analysis	OPM interagency	Modernizwe AT training	600	9/30/91
ATC pre-hire	Hampton University	Dvlp innovative curriculum	200	N/A
Revise courses	TBD	Revise Airports courses	72	N/A
Evaluate/accreditation	Univ Aviation Assn	Airway Science curriculum	209	9/30/90
Revise courses	TBD	Revise Logistics courses	71	N/A
Logistic support	Bentley Hedges	Training symposium	150	9/30/90
Training evaluation	Amer Council on Educ	Eval FAA trng for credit	30	9/30/90
Manage new Technology	Off the shelf (1)	GREAT Program	5	N/A

Contract	Contractor	Purpose	Amount	Expiration Date
AT OJT training	TBD	Upgrade existing AT OJT	195	N/A
NAS Plan overview	SRSA	Dvlp NAS overview course	19	9/30/90
Support AF CBI trng	TBD	Dvlp AF CBI courseware	285	N/A
Dvlp NAS new eqpt trng	TBD Eqpt Manufacturer	New equipment training	3,592	N/A
Support AT CBI trng	OPM interagency	Dvelp AT CBI courseware	238	9/30/91
AXR OJT training	TBD	Dvlp OJT instructor trng	200	N/A
Support AAS implement	OPM interagency	AAS trng implementation	95	9/30/91
ET pre-hire	TBD	Dvlp ET pre-hire curriculum	10	N/A
Support CBI program	TBD	Dvlp/revise existing	2,052	N/A
All other FP training	TBD	Modernize curricula	1,923	N/A
Training assistance	Various	Administer trng program	2,724	N/A
Total Contractual Training Services...			$48,840	

(1) Local purchase training is generally procurement of off-the-shelf training. Procurement is generally by purchase order and a formal contract is not entered into.

FUEL AND OIL COSTS

Mr. LEHMAN. Last year you estimated that about $11.4 million would be required in fiscal year 1990 for fuel and oil. What is your estimate for 1991?

[The information follows:]

The fiscal year 1991 estimate for fuel and oil is $12.0 million.

AIRPORT CONTROL TOWER CRITERIA

Mr. LEHMAN. Last year, it was indicated that you were revising your establishment and discontinuance criteria for airport control towers. What do these new criteria provide?

Mr. MCDANIEL. We issued a notice of proposed rulemaking in May 1989, Mr. Chairman. We expect a final rule in about three months. The criteria provides site specific benefit cost criteria for evaluating a tower without differentiating between types of aircraft operating at those facilities and recognizing the latest data on accidents at towered and non-towered locations.

TRAINING INITIATIVES PROGRAM

Mr. LEHMAN. It was also indicated that you were conducting an economic analysis of your training initiatives program. What were the results of that study?

Mr. MCDANIEL. We completed that work in June 1989 and we found that the training programs had a benefit to cost ratio of 1.4 to 1. Those are conservative estimates, because we did not take account of increased efficiencies and improved training as a result of the programs.

POLICY STUDIES

Mr. LEHMAN. Would you list for the record the policy studies you plan to complete during calendar year 1990?

[The information follows:]

The Office of Aviation Policy and Plans anticipates completing the following policy studies in calendar year 1990:

FAA Strategic Plan

Rotocraft Master Plan

National Aviation Forecast, Denver Hub Forecast, Miami Hub Forecast, Terminal Area Forecast, North Atlantic Forecast, Air Route Traffic Control Center Forecast, and Flight Service Station Forecast

Revised Airport Surface Detection Equipment Establishment Criteria

Development of Loran-C Approach Establishment Criteria

Area Control Facility Consolidation Cost Effectiveness Analyses

Cost Analysis of Voice Switching and Control System Program

Analysis of Airport Management and Pricing Options

Analysis for Setting Aviation Insurance Premium Rates

Economic analyses of approximately 70 FAA rulemaking actions including flight attendant rest requirements, drug enforcement assistance, Orlando and Tampa TCA's, primary category aircraft, European JAR requirements, fatigue testing for aging aircraft, and landing gear aural warning

Airport environment and access national policy option

Analyses and evaluation of financial options for airport and airway development

EMPLOYMENT LEVELS

Mr. **Lehman**. Last year, it was projected that your March 31, 1990, employment under your operations appropriations would be 48,147. What was your comparable actual employment as of March 31, 1990?

Mr. **Stoer**. As of March 31, the number is 48,077.

Mr. **Lehman**. Is your estimated full-time equivalent of 50,001 work years, including overtime and holidays, for fiscal 1990 still valid?

Mr. **Stoer**. We believe that the number is going to be closer to 50,500 by the end of the year.

Mr. **Lehman**. Would you provide for the record a breakdown by month of your projected end-of-month employment for fiscal years 1990 and 1991 under your operations appropriation?

[The information follows:]

OPERATIONS APPROPRIATION END OF MONTH EMPLOYMENT

	Fiscal year—	
	1990	1991
October	47,526	48,369
November	47,593	48,456
December	47,228	48,325
January	47,339	48,354
February	47,408	48,451
March	47,486	48,537
April	47,642	48,626
May	47,798	48,722
June	47,954	49,045
July	48,110	49,271
August	48,266	49,384
September	48,422	49,498

POSITIONS AND EMPLOYMENT

Mr. **Lehman**. Would you also update the table on positions and employment that was included on page 433 of last year's hearing?

[The information follows:]

	Actual employment as of—		Fiscal year 1990—		Fiscal year 1991 estimate—	
	Sept. 30, 1989	Mar. 31, 1990	FTP positions	EOY employment	FTP positions	EOY employment
Operations:						
Air Traffic	26,516	26,731	27,933	26,967	27,791	27,176
NAS Logistics Support	1,507	1,525	1,525	1,549	1,579	1,599
Systems Maintenance	9,891	9,814	10,445	9,965	10,736	10,196
Aviation Standards:						
Certification	751	737	883	811	918	846
Operation and Maintenance	3,193	3,224	3,796	3,457	4,202	3,757
Records Servicing and Analysis	95	96	98	96	141	139
Planning, Direction and Evaluation	96	101	121	98	121	98
Flight Program & Management of Aircraft	725	749	778	725	782	729
Civil Aviation Security	511	539	684	630	848	800
Medical	233	233	254	233	260	239
Aviation Safety	49	65	59	59	64	59
Airports	468	453	521	495	530	504
Development Direction	148	144	140	143	150	143
Human Resource Management	1,426	1,432	1,398	1,490	1,460	1,490
Direction, Staff and Support	1,134	1,249	1,166	1,301	1,180	1,315

	Actual employment as of—		Fiscal year 1990—		Fiscal year 1991 estimate—	
	Sept. 30, 1989	Mar. 31, 1990	FTP positions	EOY employment	FTP positions	EOY employment
Headquarters Administration	454	394	395	403	400	408
Subtotal Operations	47,197	47,486	50,196	48,422	51,162	49,498
Facilities and Equipment	1,276	1,293	1,368	1,313	1,743	1,656
Research, Engineering & Development	598	600	645	613	668	635
Aviation Insurance	2	2	2	2	2	2
Total Direct	49,073	49,381	52,211	50,350	53,575	51,791
Total Reimbursable	415	424	559	486	561	561
Grand Total FAA	49,488	49,805	52,770	50,836	54,136	52,352

PRICE LEVEL AND ANNUALIZATION

Mr. LEHMAN. Please provide a breakdown of your requested $288,510,000 increase for price level, annualization and other increases similar to that included on page 435 of last year's hearing record.

[The information follows:]

INCREASE FOR PRICE LEVEL, ANNUALIZATION, AND OTHER INCREASES
(dollars in thousands)

	AIR TRAFFIC	SYSTEMS MAINTENANCE	AVIATION STANDARDS	LEASED TELECOMMUNICATION	NAS LOGISTICS SUPPORT	DEVELOPMENT DIRECTION	AIRPORTS	HQ ADMIN	DIRECTION STAFFING & SUPPORTING SERVICES	HUMAN RESOURCE MANAGEMENT	MANAGEMENT INITIATIVES	TOTAL
PRICE LEVEL, ANNUALIZATION, AND OTHER INCREASES:												
Annualization of FY 1990 WIGs....	6,483	3,465	1,800	0	378	38	100	165	300	511	0	13,240
New FY 1991 WIGs..................	10,928	3,358	1,941	0	514	35	100	148	291	478	0	17,793
Annualization of FY 1990 Gr-to-Gr	26,730	3,254	0	0	0	0	0	0	0	0	0	29,984
New FY 1991 Gr-to-Gr..............	37,720	3,945	0	0	0	0	0	0	0	0	0	41,665
Annual. of FY 1990 Positions.....	10,000	0	1,123	0	0	0	0	0	240	0	0	11,363
Annualization of FY 1990 FTEs....	0	9,527	17,423	0	200	140	303	0	0	3,207	0	30,800
Merit Pay.........................	3,627	1,194	1,214	0	355	34	55	110	178	250	0	7,017
Workers' Compensation Program....	0	0	0	0	0	0	0	0	0	1,017	0	1,017
Anticipated Retirements..........	(12,984)	(4,940)	(1,184)	0	(504)	(100)	(150)	(150)	(400)	(414)	0	(20,826)
FY 1990 Pay Raise Annualization..	12,505	3,502	2,701	0	548	86	200	194	560	645	0	20,941
FY 1991 Pay Raise for GS and SES.	22,018	5,683	4,634	0	861	140	301	230	820	1,574	0	36,279
One Additional Compensable Day...	5,635	1,935	1,176	0	270	43	85	83	240	266	0	9,743
Overtime..........................	(800)	0	0	0	0	0	0	0	0	0	0	(800)
COLA..............................	0	0	822	0	0	0	0	0	0	0	0	822
Savings Related to A-76 Studies..	0	0	0	0	0	0	0	0	0	0	(1,300)	(1,300)
Dept. of State....................	0	0	0	0	0	0	0	0	530	0	0	530
Aeronautical Charting............	1,427	0	0	0	0	0	0	0	0	0	0	1,427
GSA Space Rent....................	0	0	0	0	6,487	0	0	0	0	0	0	6,487
GSA Space Rent Inflation.........	0	0	0	0	908	0	0	0	0	0	0	908
Utilities.........................	0	0	0	0	1,451	0	0	0	0	0	0	1,451
Inflation.........................	6,184	7,491	3,435	8,832	4,262	89	279	230	2,347	5,275	0	38,424
Contract Weather Observations....	3,809	0	0	0	0	0	0	0	0	0	0	3,809
Annualized FY-90 Recurr. Costs...	0	0	0	4,624	0	0	0	0	0	0	0	4,624
Nat. Security Emerg. Prep. Inc...	0	0	0	727	0	0	0	0	0	0	0	727
Tariff/Fee/Price Increases.......	0	0	0	3,500	0	0	0	0	0	0	0	3,500
Host Commercial Licensing........	288	0	0	0	0	0	0	0	0	0	0	288
AWOS..............................	0	0	0	1,138	0	0	0	0	0	0	0	1,138
DMN...............................	0	0	0	5,970	0	0	0	0	0	0	0	5,970
FSAS..............................	0	0	0	1,276	0	0	0	0	0	0	0	1,276
ICSS..............................	0	0	0	2,020	0	0	0	0	0	0	0	2,020
LORAN-C...........................	0	0	0	895	0	0	0	0	0	0	0	895
RCL...............................	0	0	0	8,112	0	0	0	0	0	0	0	8,112
Regional Programs................	0	0	0	5,723	0	0	0	0	0	0	0	5,723
TMS...............................	0	0	0	2,000	0	0	0	0	0	0	0	2,000
DMN...............................	0	0	0	300	0	0	0	0	0	0	0	300
Guard Service & Security Invest..	0	0	702	0	0	0	0	0	0	0	0	702
K-9 Contract.....................	0	0	345	0	0	0	0	0	0	0	0	345
TOTAL NON-DISCRETIONARY...........	133,579	38,414	36,155	45,186	15,728	523	1,283	1,019	5,114	12,808	(1,300)	288,510

WITHIN GRADES

Mr. LEHMAN. Would you indicate, by activity, the increases requested for within grade and grade-to-grade promotions, similar to that included on page 436 of last year's hearing record?

[The information follows:]

PROMOTIONS WITHIN GRADE AND GRADE-TO-GRADE PROMOTIONS

[In thousands of dollars]

Activity	1990	1991
Air traffic	33,222	48,648
NAS system logistics support	376	514
Systems maintenance	7,863	8,920
Aviation standards	1,800	1,941
Development direction	36	35
Airports	129	121
Human resource management	511	478
Direction, staff and support	308	291
Headquarters administration	177	158
Total operations appropriations	44,422	61,106

GENERAL SERVICE GRADES

Mr. LEHMAN. Would you provide for the record a table, similar to the one on page 436 of last year's hearing record, showing the number of employees at each GS grade for fiscal years 1989, 1990 and 1991?

[The information follows:]

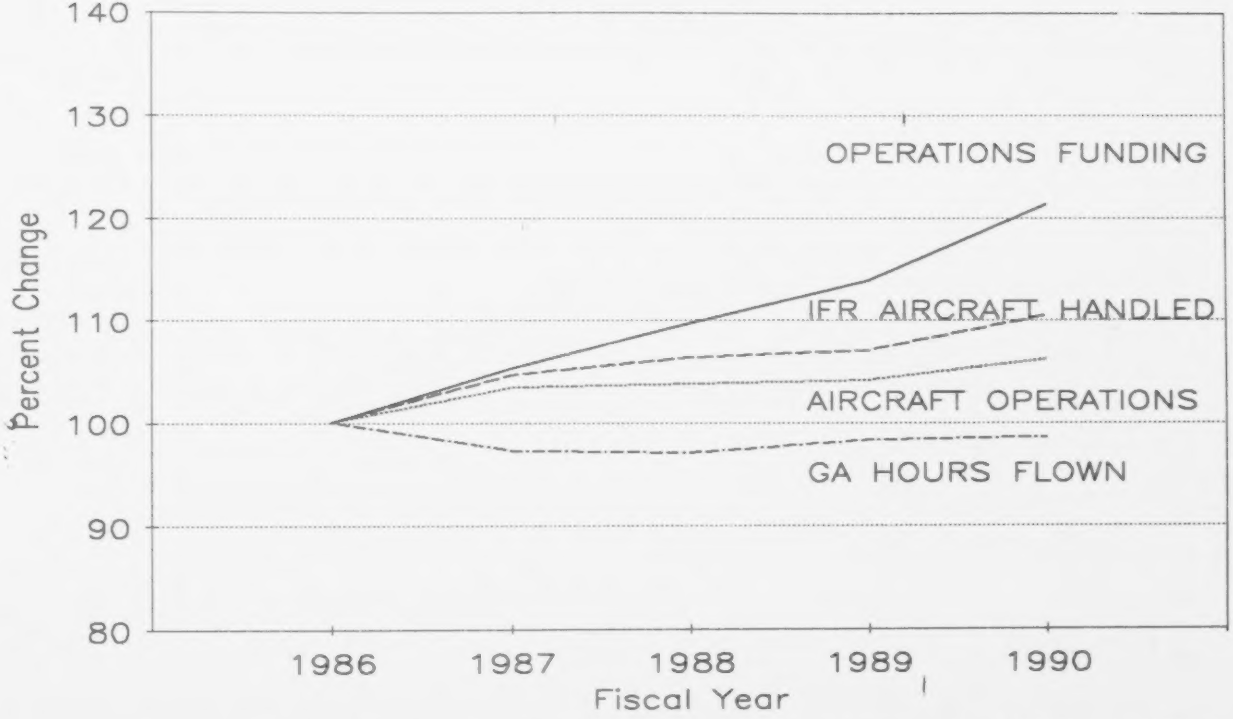
Grade	Fiscal year—		
	1989	1990	1991
GS-16	0	0	0
GS/GM-15	2,538	2,835	2,836
GS/GM-14	9,029	9,881	9,880
GS/GM-13	6,218	6,485	6,489
GS-12	8,260	10,023	10,123
GS-11	7,308	5,548	5,684
GS-10	1,503	1,414	1,412
GS-9	3,184	3,559	3,561
GS-8	157	129	126
GS-7	2,828	2,766	2,769
GS-6	1,096	1,181	1,180
GS-5	1,443	1,422	1,422
GS-4	570	498	499
GS-3	55	56	52
GS-2	1	0	0
GS-1	1	0	0
Total	44,191	45,797	46,033

COMPARATIVE RATES OF GROWTH

Mr. LEHMAN. Would you also provide for the record a chart, similar to the one on page 438 of last year's hearing record, showing your operations appropriation (constant dollars), aircraft operations, general aviation hours, and IFR aircraft handled using fiscal year 1986 as the base?

[The information follows:]

COMPARATIVE RATES OF GROWTH: 1986 - 1990
Operations Funding Vs
Selected Aviation Activity Measures
(1986 = 100)



Operations Funding index based on constant 1982 dollars.

PERMANENT CHANGE OF STATION MOVES

Mr. Lehman. On page 18, you show about an 11 percent increase in the average cost of your change of station moves. What's the basis for the percentage increase?

Mr. Stoer. Mr. Chairman, about 4 to 5 percent of that is associated with inflation. Then there's another 6 to 7 percent of that which is attributable to the relocation services contract that we have where the contractor has to cover the cost of houses that he has to acquire during moves.

Mr. Lehman. There is a wide range of costs depending on what the employee does. The average cost to move an aircraft employee is $28,000 while the average cost for an aviation safety employees is $86,000.

Mr. Stoer. The reason for that difference is that our aircraft employees, to the extent that they are relocated, typically move from one small location to another; for example, Battle Creek, Michigan to suburban Atlanta or Atlantic City. Those moves are relatively inexpensive.

Conversely, in the aviation safety area, that happens to be individuals in the GS-14 or GS-15 area moving from one high cost of living area to Washington, D.C. So the average has been running much higher.

Mr. Lehman. Why is there such a difference, can you give us a better breakdown for the record?

Mr. Stoer. Yes, we can, sir.

[The information follows:]

The average cost for the agency per permanent change-of-station (PCS) move is $32,700. For those activities that vary by more than $3,000, the activity and the reason are listed below:

Direction, Staff and Support Services.—$39,100. Average cost per move for FY 1989 was $38,100. Increase to average represents small increase to cover inflation. Workforce will be comprised of primarily field personnel who would be moving from and to a great diversity of locations.

Medical.—$43,000. Represents one PCS move for medical personnel. Based on grades for medical personnel and increased costs for housing relocation contract, this represents best estimate for one move.

Airports.—$45,800. PCS moves are being made by personnel who are the Airport Division Managers and Airport District Office Managers, GM-15 and SES personnel. Most will be moving to major metropolitan areas with higher real estate costs. These managers own larger, more expensive homes which drive the average cost per move upward.

Headquarters Administration.—$58,600. This workforce is comprised of predominantly SES managers-who will be moving into the Washington, DC area, from high level regional positions. Real estate costs and PCS benefits account for higher average PCS costs.

Development Direction.—$68,900. GM-15 and SES managers are essentially the workforce who will make PCS moves. These represent the management for implementation of the NAS Plan. Again higher graded personnel moving into Washington, DC cost more to move.

Aviation Safety.—$86,300. This GM-15 and above workforce will be coming into the Washington, DC area from major metropolitan areas. Higher housing costs both on the selling and buying ends tend to drive up the costs of PCS moves.

Mr. Goldman. Just one point, Mr. Chairman. I think that's a one of a kind type move, the $86,000 one. But we will provide it for the record.

Mr. Lehman. That's the most expensive moving operation we have seen anywhere. When you plan these job changes, do you look at what it's going to cost to move these people?

Admiral **Busey**. As much as we can. Of course, the recognition that it's going to cost us money is there. It's part of the constraint. But the main thing we have to consider is what's proper for the individual from a career progression standpoint. Remember, we want to keep these people; we need to move them, they bid on higher paid positions which means they do have to move into another area, so we've got to keep the progression of the work force coming. So pay is one consideration, but it can't be the total consideration.

And we've got to recognize also we may be moving a controller from the Los Angeles area where he's got a large house, it's difficult to sell if the market conditions are down, so the contractor that we deal with has to keep that house in his inventory for some period of time until he can sell it. We want the employee to move on so we've got his services at the next facility.

So all of these costs and constraints figure into the equation of total cost.

OPERATION OF THE TRAFFIC CONTROL SYSTEM

Mr. **Lehman**. Turn to operation of the traffic control system. To what extent has air traffic activity during fiscal year 1990 been consistent with your projections?

Mr. **McDaniel**. Based on five months of data, Mr. Chairman, it's been very consistent. For total instrument operations and tower operations, they've been almost exactly as forecast. Center operations have been down very slightly.

Mr. **Lehman**. Last year, you projected 47 million instrument operations for 1990 and you have now revised this 1990 projection to 46.4 million. What was the reason for this revision and what do your most recent projections indicate?

Mr. **McDaniel**. Two reasons, Mr. Chairman. One was the Eastern Airlines strike and subsequent reductions in numbers of operations. Secondly, more aircraft were used on international as opposed to domestic routes than we anticipated.

Our current forecast indicates that there will be 46.4 million operations in fiscal year 1990, growing to 48 million operations in fiscal year 1991. Instrument operations.

GENERAL AVIATION ACTIVITIES

Mr. **Lehman**. Last year, it was indicated that the number of flight services, which had been declining for the past seven or eight years had bottomed out. To what extent have general aviation activities and the number of flight services you have provided increased in the past year?

Mr. **McDaniel**. There was a turnaround in general aviation activity in fiscal year 1989, which was delightful to us. The number of flight services actually increased from 44.8 million to 45 million, and general aviation hours flown increased from 33.5 to 33.9 million hours.

Mr. **Lehman**. What level of economic growth do your fiscal year 1991 activity projections assume?

Mr. **McDaniel**. We used the OMB forecast of 3.4 percent increase in gross national product.

OVERTIME ESTIMATES

Mr. **Lehman**. Last year, we questioned your overtime estimates for fiscal year 1989 and we were told you were on track. However, your actual fiscal year 1989 overtime was 100,000 hours below your estimate. What was the reason for this in the second half of the last fiscal year?

Mr. **Pollard**. Basically, the reason for that, sir, was just the fiscal constraints that we were running out of money, we wanted to manage the dollars that we had. So consequently over time was reduced. It didn't impact safety; it did impact training somewhat.

Mr. **Lehman**. You have reduced your fiscal year 1990 overtime estimates from those presented a year ago. Is your actual overtime for 1990 consistent with your revised estimate?

Mr. **Pollard**. Yes, sir, it is consistent. And we think we've bottomed out as far as reduction of overtime. Based on a prior conversation that we had this morning, we think we probably need to use more overtime, but do a better job of where we utilize the overtime.

Mr. **Lehman**. What's the optimal level? What's your best overtime level?

Mr. **Pollard**. I'm not sure if I can answer an optimal level. I think generally in business, a 6 to 7 percent overtime usage as far as supplementing the work force is a reasonable target. Ours is considerably less than that. Based on the type business we are in, I would say 2 to 3 percent supplement to the work force.

Mr. **Lehman**. Would you provide your actual overtime hours and costs for each of your four activities for the first six months of this fiscal year?

[The information follows:]

The overtime hours and dollars are available through February 11, 1990, which is pay period 4 of 1990. The four activities are as follows:

	Hours	Cost
Activity:		
Centers	95,820	$3,442,719
Terminals	121,975	4,084,989
Flight Service	43,870	1,008,527
PD&E[1]	3,640	68,857

[1] Source of PD&E cost was accounting's actual obligations for the end of March.

CONTROLLER WORK FORCE

Mr. **Lehman**. What's the basis for the proposed fiscal year 1991 breakdown of new controller employees between your centers and your towers?

Mr. **Pollard**. The basis of the breakdown of the 495 new controllers was 336 in en route facilities and the remainder of them in terminal facilities.

Mr. **Lehman**. To what extent is your experience to date during fiscal year 1990 consistent with your estimated 562 air traffic retirements for 1990 and have you seen any trend that might cause you to change the original estimate?

Mr. **Pollard**. So far, we've had a total of 218 retirements in fiscal year 1990, compared to 203 in the same time frame in fiscal year 1989, and we think we're tracking on our projection.

Mr. **Lehman**. How many center and tower personnel actually retired during the first six months of this fiscal year?

[The information follows:]

As of March 31, there have been 120 optional retirements in the tower option, and 98 in the center option for a total of 218 so far in FY-90. Compared to the first six-month period in FY-89, there were 116 tower and 87 center optional retirements, for a total 203.

We believe our current estimate of retirements in FY-90 is accurate.

AIR TRAFFIC RETIREMENT STATISTICS—GS-2152 RETIREMENTS IN TOWERS AND CENTER OPTIONS

	Tower	Center	Total
Fiscal year:			
1985	198	257	455
1986	256	289	545
1987	246	171	417
1988	210	181	391
1989	253	199	452
1990 [1]	120	98	218

[1] Fiscal year 1990 data through Mar. 31, 1990.

AIR TRAFFIC RETIREMENT STATISTICS—GS-2152 RETIREMENTS IN TOWERS AND CENTER OPTIONS

	Calendar year 1988		Calendar year 1989		Calendar year 1990		Calendar year 1991	
	Eligible	Actual	Eligible	Actual	Eligible	Estimate	Eligible	Estimate
Option:								
Center	587	210	681	198	858	249	980	285
Towers	807	236	895	264	1,060	313	1,199	354
Total	1,394	446	1,576	462	1,918	562	2,179	639

Note.—Numbers exclude disability retirements. Source of actual data—CPMIS

NEW HIRES

Mr. **Lehman**. How many of the 2082 controllers that you plan to hire during fiscal year 1990 were hired during the first six months?

Mr. **Pollard**. We started out with large classes in the first several months before we had the actual funding constraints and reduced our 17,000 number. We've actually had 1300 academy trainees at this point.

ACADEMY LOSS RATE

Mr. **Lehman**. What is the loss rate at the academy and in terminal and en route training?

Mr. **Pollard**. Loss rate remains relatively consistent at the academy, which is slightly more than 40 percent of those people that we send to the academy.

Mr. **Lehman**. What about the other places?

Mr. **Pollard**. Historically, in the field facilities, depending on where the individuals are assigned, we will lose a relatively small percentage at our Level 1 and 2 facilities. Assigning them to the busier facilities, which we try to avoid as much as possible, the loss rate is 12 to 14 percent. However, those people are not a loss to the system. They would, if they meet certain qualifications, be reassigned to other facilities.

MILITARY CONTROLLERS

Mr. **Lehman**. How many former military controllers did you hire in fiscal year 1989 and do you expect to hire any in fiscal years 1990 and 1991?

[The information follows:]

In fiscal year 1989, at the end of a fiscal year 1988 hiring effort, we hired 98 former-military controllers. We cannot project fiscal years 1990 and 1991 hiring at this time. We have a large number of non-military applicants waiting on the current lists of eligible candidates. However, we may be able to hire significant numbers of former military in 1991. As a result of the recent change to the Veteran's Readjustment Authority and the potential early release of a number of military controllers from the Department of Defense, we are reexamining our programs in that area. We plan to consult with the military services to determine the best way to hire the individuals being given early release. In addition, we have a work group developing a proposal for hiring retired military controllers for our lower level towers.

GRADE-TO-GRADE PROMOTIONS

Mr. **Lehman**. Why is your requested increase for new grade-to-grade promotions about 33 percent more than last year's requested increase for this purpose, particularly since you are only projecting 500 promotions (about 6 percent) more than you had in fiscal 1990?

Mr. **Stoer**. Mr. Chairman, we'd like to provide a fairly detailed explanation for the record on that. But basically, we've recently started applying a more accurate forecast based on our Centralized Personnel Information System, and we believe that this year's estimate is more accurate than last years.

Mr. **Lehman**. Please provide for the record a detailed breakdown of how this requested $37.72 million increase was derived.

[The information follows:]

An analysis of anticipated grade-to-grade promotions was made using the computerized personnel management information system (CPMIS) considering the dynamics of the workforce for the three retirement options: Civil Service Retirement System (CSRS) which comprises approximately 70 percent of the workforce; Federal Employees Retirement System (FERS) Special, which is dedicated to those who entered the workforce after 1984 and who actively control air traffic—approximately 26 percent of the workforce; and FERS non-Special for those who entered after 1984 but who are other than controller workforce—approximately 4 percent of the workforce.

Grade-to-grade promotions were computed for one-half year. Due to the rapid career progression possible within the Air Traffic workforce, 8,678 promotions for FY 1990 will affect less than one-third of the total 26,967 workforce. Of this total, 2,603 promotions will involve students who will leave the academy, go to the field, and possibly receive two promotions in their first year with the agency. The remaining 6,075 promotions are spread among the older workforce who will attain senior grade levels.

Promotions are computed for base pay and associated benefits. For the Air Traffic workforce, the average cost of grade-to-grade promotion is $3,545 per employee for base pay and $802 per employee for benefits, for a total of $4,347 per employee. This average cost is less than the equivalent of going from a GS-9 ($24,705) to a GS-11 ($29,891).

AERONAUTICAL CONTRACT CHARTING

Mr. **Lehman**. Why is your aeronautical charting program increasing at more than the normal rate of inflation?

Mr. **Pollard**. Primarily, it's increasing because of new products that we feel are necessary and our users feel are necessary to provide services in the way of charting. We have some inflation increase, but also some new products that we're introducing.

CONTRACT WEATHER OBSERVATIONS

Mr. **Lehman**. You are requesting a $3.8 million increase for contract weather observations. We were told that National Weather Service is not contributing to the cost of your contract weather observation, even though they benefit by this additional information. Why shouldn't they share?

Mr. **Pollard**. We do share in the development of weather systems with National Weather Service. We provide data. We're required to take aviation and weather observations. We provide that for their data base and we feel that we get at least an equal amount from them, where they provide weather at their national weather service location for us to utilize.

FLIGHT SERVICE STATIONS

Mr. **Lehman**. Please provide a listing of the 34 flight service stations scheduled for consolidation including the date each of these stations will be consolidated.

[The information follows:]

The FAA plans to consolidate 39 FSS's in FY 1991. The 39 FSS's are as follows:

FSS	AFSS	Fiscal year quarter
Bettles, AK	Fairbanks, AK	4th
Northway, AK	......do	2nd
Tanana, AK	......do	4th
Big Delta, AK	......do	3rd
Yakutat, AK	Juneau, AK	2nd
Homer, AK	Kenai, AK	3rd
McGrath, AK	......do	2nd
Farewell, AK	......do	2nd
Tuscaloosa, AL	Anniston, AL	4th
Harrison, AR	Jonesboro, AR	4th
Little Rock, AR	......do	3rd
Pine Bluff, AR	......do	3rd
Crescent City, CA	Oakland, CA	4th
Lancaster, CA	Riverside, CA	2nd
Atlanta, GA	Macon, GA	3rd
Bowling Green, KY	Louisville, KY	2nd
Paducah, KY	......do	3rd
Billings, MT	Great Falls, MT	1st
Bozeman, MT	......do	2nd
Butte, MT	......do	3rd
Cut Bank, MT	......do	2nd

FSS	AFSS	Fiscal year quarter
Lewistown, MT	do	3rd
Livingston, MT	do	2nd
Miles City, MT	do	3rd
Missoula, MT	do	1st
Poughkeepsie, NY	Islip, NY	1st
Bradford, PA	Altoona, PA	3rd
Du Bois, PA	do	4th
Bristol, TN	Nashville, TN	4th
Crossville, TN	do	4th
Alice, TX	San Angelo, TX	4th
San Antonio, TX	do	4th
Wink, TX	do	4th
Newport News, VA	Leesburg, VA	2nd
Laramie, WY	Casper, WY	2nd
Rawlins, WY	do	2nd
Rock Springs, WY	do	3rd
Sheridan, WY	do	4th
Worland, WY	do	3rd

Mr. LEHMAN. What is the status of your flight service station consolidation program? How many automated facilities have been opened, how many stations have been closed, what costs have been incurred, and what cost savings have resulted? What you can't give us now, you can supply for the record.

Mr. POLLARD. We have commissioned 46 of the planned 61 automated FSSs and we have closed or relocated 175 FSSs and we have 143 to go. The primary cost from a personnel standpoint would be the relocation of those people from the closed flight service station to the new automated FSS.

PLANNING POSITIONS

Mr. LEHMAN. On page 36, why do you need 158 additional planning positions?

Mr. STOER. Mr. Chairman, for the last several years, virtually all the increases in the air traffic work force have been directly in the controller work force area. These are planning positions that will help us primarily in the regions as we get ready for the advanced automation system coming on where there will be a lot of airspace realignment work, as well as certain evaluation positions that are needed in the field.

They are for planning purposes for our regions right now, and we expect to be able to fund them in fiscal year 1992.

Mr. LEHMAN. Please elaborate on your answer for the record, including a breakdown by activity (towers, centers, etc.) of where these positions will be assigned.

[The information follows:]

The majority of these positions will be assigned to the PD&E subactivity. These positions are required in order to support the significant increases that have occurred in the Controller Workforce (CWF) over the past several years.

CHANGE OF STATION COSTS

Mr. LEHMAN. On pages 36 and 37, we have already discussed your controller staffing requirements and change of station increase. What efforts are you making or what recommendations do you have to control change of station costs, which have increased by over 50 percent in just three years? We talked about this a little bit already.

Mr. GOLDMAN. We already talked a little bit about it, let me just put a couple of numbers in for the record. In 1988, our average change of station cost was $20,000. In 1989, the average was $25,000. It jumped up significantly. And what the administrator has started is two different task forces. One task force is looking at the ways within the system for permanent change of station that we can do it more efficiently and effectively without derogating what is offered to our employees. The second is to look at those parts of the agency that change of station is driven by policies, and then come back and report to him on what can be done to improve both of those. That will be done this year.

AIR TRAFFIC CONTROL SECTORS

Mr. LEHMAN. Please provide for the record the number of sectors you currently have in your centers and how many additional sectors you plan to add in 1990 and 1991.

[The information follows:]

There are currently 710 domestic, en route sectors. We anticipate a requirement for approximately 10 additional sectors in 1990 and an additional 12 sectors in 1991.

NATIONAL RESECTORIZATION PROGRAM

Facility ID	Full time	Part time	Nonradar	Ocean	Current authorized
ZTL	45	0	0	0	45
ZJZ	33	0	0	0	38
ZMA	18	7	0	2	27
ZME	33	4	0	0	37
ZID	31	5	0	0	36
ZOB	39	3	0	0	42
ZAU	42	0	0	0	42
ZMP	30	2	0	0	32
ZKC	34	4	0	0	38
ZAB	26	12	0	0	38
ZFW	37	4	0	0	41
ZHU	36	1	1	1	39
ZBW	32	1	0	0	33
ZNY	25	1	0	5	31
ZDC	38	6	0	0	44
ZLA	31	2	0	0	33
ZOA	25	0	0	6	31
ZDV	33	2	0	0	35
ZSE	26	0	0	0	26
ZLC	20	2	0	0	22
Total	634	56	1	19	710

ATC POSITIONS AND EMPLOYMENT LEVELS

Mr. LEHMAN. Would you update for the record the table on pages 446 and 447 of last year's hearing showing authorized positions and employment for each of your centers as well as authorized controller work force and onboard full performance level controllers?

[The information follows:

AIR TRAFFIC CENTER POSITIONS AND EMPLOYMENT

Location	Center code	Authorized staffing fiscal year 1990	Current onboard staffing [1]	Developmental controllers onboard	FPL's onboard
Anchorage, AK	ZAN	170	184	85	83
Kansas City, MO	ZKC	430	412	135	226
Washington, DC	ZDC	510	486	169	271
New York, NY	ZNY	370	357	138	182
Chicago, IL	ZAU	482	511	255	213
Indianapolis, IN	ZID	370	369	133	200
Minneapolis, MN	ZMP	290	331	89	205
Cleveland, OH	ZOB	466	279	135	301
Boston, MA	ZBW	354	339	132	169
Denver, CO	ZDV	430	394	136	219
Salt Lake City, UT	ZLC	326	243	76	145
Seattle, WA	ZSE	356	296	104	162
Jacksonville, FL	ZJX	362	343	84	219
Miami, FL	ZMA	331	301	94	179
Memphis, TN	ZME	378	330	83	212
San Juan, PR	ZSU	63	45	14	23
Atlanta, GA	ZTL	525	490	129	311
Albuquerque, NM	ZAB	364	335	88	207
Fort Worth, TX	ZFW	391	409	115	250
Houston, TX	ZHU	384	379	109	225
Honolulu, HI	ZHN	68	63	15	39
Los Angeles, CA	ZLA	353	362	134	193
Oakland, CA	ZOA	345	314	101	180
Agana, GU	ZUA	17	13	0	11
Central Flow	CFCF	44	28	0	28
Totals		8,179	7,813	2,553	4,453

[1] Data from CPMIS as of Mar. 31, 1990.

Note: Authorized staffing refers to total controller workforce. There is no separate authorization for development controllers.

ATC PERSONNEL COMPARED WITH STAFFING STANDARD

Mr. LEHMAN. Would you also update the table on page 447 of last year's hearing record showing center personnel by category compared with your standard?

[The information follows:]

ONBOARD CENTER PERSONNEL COMPARED WITH STAFFING STANDARD

Category	Onboard as of Mar. 31, 1990	Staffing standard	
		For fiscal year 1990	For fiscal year 1991
Controller Work Force (CWF)	7,813	7,898	8,028
Full-Performance Level (FPL) [1]	(4,453)		
FPL Controllers	(4,165)		
FPL Traffic Mamagement Coordinators	(288)		
Development Pipeline (GS–09) [1]	(1,175)		
Air Traffic Assistants	707	([2])	([2])
Supervisory and Staff	1,523	1,424	1,424
Total	10,043	9,322	9,452

[1] Included in CWF.

[2] Current staffing standards do not give a distinct number for air traffic assistant.

Note: Full performance level controllers include those GS–2152's at the FPL grade and traffic management coordindators. We also have 153 controllers at the FPL grade level, but not yet fully certified on all positions of operation in their current facilities.

TOWER PERSONNEL AND STAFFING STANDARD

Mr. LEHMAN. Would you update for the record the table on page 448 of last year's hearing record showing tower personnel by category compared with your standard?

[The information follows:]

ONBOARD TOWER PERSONNEL COMPARED WITH STAFFING STANDARD

Category	Onboard as of Mar. 31, 1990	Staffing standard	
		For fiscal year 1990	For fiscal year 1991
Controller Work Force (CWF)	9,396	10,106	10,144
Full-Performance Level (FPL) [1]	(5,903)		
FPL controllers	(5,834)		
FPL traffic management coordinators	(69)		
Developmental pipeline (GS–09) [1]	(748)		
Air Traffic Assistants	599	([2])	([2])
Supervisory and Staff	1,531	1,841	1,952
Total	11,526	11,947	12,096

[1] Included in CWF

[2] Current staffing standards do not give a distinct number for air traffic assistants.

Note: Full performance level controllers include those GS–2152's at the FPL grade and traffic management coordinators. We also have 722 controllers at the FPL grade level, but not yet fully certified on all positions of operation in their current facilities. The CWF number in the staffing standard is comprised of ATCS's, area supervisors, traffic management coordinators, first line supervisors and the development pipeline.

TOWERS CLOSED AFTER STRIKE

Mr. LEHMAN. Would you also update for the record the listing on page 448 of last year's hearing record showing the status of those towers temporarily closed after the strike?

[The information follows:]

As of April 1, 14 airport traffic control towers are closed temporarily.

Benton Harbor, MI
Akron (Muni), OH
Athens, GA
Hickory, NC
New Bern, NC
Ponce, PR
Mayaguez, PR
Spartanburg, SC
Knoxville (Dwtn), TN
Hot Springs, AR
Pine Bluff, AR
West Memphis, AR
Plainview, TX
Merced, CA

As of April 1, 10 airport traffic control towers have received permission to permanently close. They are:

Brunswick, GA
Imperial, CA
Danville, IL
Kansas City (Fairfax), KS
Valdosta, GA
Galesburg, IL
Marysville, CA
(Arpt Closed)
Dade-Collier (Miami), FL
Fresno (Chandler), CA
Valdez, AK

Fifty-eight towers were closed and since reopened when resources became available to resume services at these locations.

Harlingen, TX
Morristown, NJ
North Las Vegas, NV
Olympia, WA
Groton, CT
Beverly, MA
Lancaster, CA
Grand Island, NE
Lawrence, MA
Worcester, MA
El Monte, CA
Molokai, HI
Oakland (North), CA
Kinston, NC
San Carlos, CA
Salinas, CA
Santa Maria, CA
Palo Alto, CA
Salina, KS
Muncie, IN
Paducah, KY [2]
Cleveland (Cuyahoga), OH [2]
Ardmore, OK [2]
Lewisburg, WV [2]
Laredo, TX [2]
Enid, OK [2]
Flagstaff, AZ [2]
Topeka (Billard), KS [2]
N. Myrtle Beach, SC [2]
Hobbs, NM [2]

Lebanon, NH	Ann Arbor, MI	Cape Girardeau, MO [2]
Bloomington, IN	Santa Fe, NM	Farmington, NM [2]
Tuscaloosa, AL	Jackson (Hawkins), MS	Owensboro, KY [2]
Chico, CA	Riverside, CA	Pendleton, OR [2]
Greenville, MS	San Diego (Brown), CA	Marion, IL [2]
Oxnard, CA	McAllen, TX	Martha's Vineyard, MA [2]
Danbury, CT	Alexandria, LA	Falmouth, MA [2]
New Bedford, MA	Joplin, MO	(Otis AFB–ATCT Only)
Twin Falls, ID	Shreveport (Downtown), LA	
San Antonio (Stinson), TX		
San Jose (Reid-Hillview), CA		
St. Petersburg (Whitted), FL		

[1] Potential FAA Contract Towers pending site surveys and indepth analysis.

[2] FAA Contract Tower.

GENERAL AVIATION INSTRUMENT OPERATIONS

Mr. LEHMAN. Last year, it was indicated that the percentage of general aviation instrument operations at your towers would decrease from 41.0 percent in 1988 to 40.8 percent in 1989. What was the actual percentage in 1989?

[The information follows:]

The actual percentage of general aviation instrument operations at our towers was 41.3 percent in 1989.

Mr. LEHMAN. Would you update for the record the information on page 449 of last year's hearing record showing general aviation instrument operations at your towers for fiscal years 1981 through 1991?

[The information follows:]

GENERAL AVIATION INSTRUMENT OPERATIONS AT FAA TOWER AIRPORTS

[In millions]

Year	General aviation operations	Total operations	GA operations as a percent of total
1981	18.5	37.2	49.7
1982	13.9	31.7	43.9
1983	14.8	34.0	43.5
1984	16.0	37.3	42.9
1985	16.4	38.7	42.4
1986	16.8	40.5	41.5
1987	17.9	43.4	41.2
1988	18.3	44.5	41.1
1989 preliminary	18.6	45.0	41.3
1990 forecast	19.0	46.4	40.9
1991 forecast	19.7	48.0	41.0

CONTRACT TOWER LOCATIONS

Mr. LEHMAN. Would you update for the record the locations of your contract towers similar to the information on pages 448 and 450 of last year's hearing record?

[The information follows:]

In fiscal year (FY) 1991, the FAA plans to expand the contract tower program to include an additional 10–15 sites. Program funding should support the additional sites, full year costs for the 5 new contract towers commissioned or planned for commissioning in FY 1990, increased contractual costs on the 26 contract towers from FY 1990, and other costs associated with establishing a contract tower.

CONTROL TOWERS PLANNED TO BE OPERATED AS FAA CONTRACT TOWERS IN FISCAL YEAR 1991

Location	Level/type	Status
Topeka (Billard), MS	I/VFR	FAA Contract Tower
Cape Girardeau, MO	I/VFR	Do.
Stewart, NY	I/VFR	Do.
Lewisburg, WV	I/VFR	Do.
Marion, IL	I/VFR	Do.
Waukegan, IL	I/VFR	Do.
Cleveland (Cuyahoga County), OH	I/VFR	Do.
Martha's Vineyard, MA	I/VFR	Do.
Nashua, NH	I/VFR	Do.
Hailey, ID	I/VFR	Do.
Pendleton, OR	I/VFR	Do.
Bellingham, WA	I/VFR	Do.
Lakeland, FL	I/VFR	Do.
Valdosta, GA	I/VFR	Do.
Owensboro, KY	I/VFR	Do.
Paducah, KY	I/VFR	Do.
North Myrtle Beach, SC	I/VFR	Do.
Smyrna, TN	I/VFR	Do.
New Iberia, LA	I/VFR	Do.
Farmington, NM	I/VFR	Do.
Hobbs, NM	I/VFR	Do.
Ardmore, OK	I/VFR	Do.
Enid, OK	I/VFR	Do.
Laredo, TX	I/VFR	Do.
Flagstaff, AZ	I/VFR	Do.
Whiteman, CA	I/VFR	Do.
Additional sites: 10 to 15 ATCT's to be identified	I/VFR's	(1)

[1] Scheduled for FY 1991; reviewing open and temporarily closed FAA ATCT's and a few non-Federal ATCT's.

Mr. LEHMAN. Do you pay all the costs of a contract tower operation?

Mr. POLLARD. Yes, sir, we do.

Mr. LEHMAN. How much does your fiscal year 1991 budget include for contract towers?

Mr. POLLARD. We do not have anything included additionally in fiscal year 1991 for contract towers. We anticipate by the end of 1990 we will be operating 26 facilities and we've been looking at some of the closed facilities for additional contract candidates.

Mr. LEHMAN. In the 1991 budget, what's the total?

Mr. POLLARD. In the 1991 budget, there is no increase. I can't recall what that base is; I will have to get back with you. But it seems like it's $25 million, but I'd like to verify that and submit that for the record.

Mr. STOER. We will provide the number for the record. It's considerably less than $25 million, sir.

[The information follows:]

The FY 1991 budget base includes $6.6M for contract towers.

CHARTING COST SHARES

Mr. **Lehman**. Please update for the record the information on charting cost shares that was included on page 450 of last year's hearing record.

[The information follows:]

The table below shows the shared cost of the charting program. It reflects the recovery of costs for chart compilation and data base management previously funded by NOAA appropriation. Full cost recovery has occurred since 1989.

[In percent]

	Fiscal year—				
	1987	1988	1989	[1] 1990	[1] 1991
FAA	52	52	45	46	46
NOAA	16	16	0	0	0
DOD	24	24	27	26	26
Public Sales	8	8	28	28	28

[1] Estimated.

Mr. **Lehman**. What was the basis for the revised cost allocation for the charting program?

[The information follows:]

The Aeronautical Charting program is a continuous and essential activity that supports operational requirements throughout the Federal Aviation Administration (FAA). This program implements all changes to the National Airspace System (NAS) via the publication of updated aeronautical charts and related publications. In addition, the program provides various critical products and services to FAA field functions including air traffic control, flight inspection, procedure development, etc.

The program is characterized by continuous growth and constantly changing priorities. Because of this growth and the increasing sophistication of the NAS, new charting products are constantly being produced. These new products, support new navigation products, require periodic updating to maintain currency and accuracy of the information.

The FAA is also required to pay its share of NOAA's increases in operating costs for the charting program. These include NOAA's compilation and data base management costs and personnel pay raises. These are non-discretionary costs that have been imposed by OMB over which the FAA has no option.

The following are some examples of the recent new products which require updating:

119 new arts II minimum safe altitude warning (MSAW) digital terrain maps have been added to the program. Updates required every 6 months.

9 new terminal control areas (TACs) were established since 1989. Updates required every 6 months.

3 new helicopter charts for New Orleans, Houston, Atlanta. Updates annually.

2 new flyway charts for Detroit and Phoenix. Updates every 6 months.

18 new BRITE radar video maps on Programmable Read Only Memory (PROM) chips. Updates as operationally required.

The following are examples of new products for the coming year:

Grand Canyon VRF chart.

TAC charts for possible candidate sites of Cincinnati, Raleigh-Durham, Fort Lauderdale, and San Juan.

Flyway charts for Chicago and Dallas.

These charts and products are critical to aviation safety. If not funded, we can reasonably expect an increase in airspace intrusions because of pilot inability to comply with flight restrictions. As the NAS becomes more complex, accurate, easy to use charting is extremely critical to improve the safety of the system.

CONTROLLER TRAINING

Mr. LEHMAN. How much does your fiscal year 1991 budget include for your controller training and automation support contracts?

Mr. POLLARD. The amount in the 1991 budget for the training contract is $25 million. For the automation contract, it is $31 million.

COMMUNICATIONS AND FLIGHT DATA CENTER

Mr. LEHMAN. Would you provide for the record a table showing the personnel and costs for your national communications center and national flight data center?

[The information follows:]

COMMUNICATIONS AND FLIGHT DATA CENTER

Fiscal year	Cost	Personnel
National Communications Center:		
1983	$2,296,753	88
1984	2,466,400	88
1985	2,405,794	87
1986	2,416,800	87
1987	2,145,064	62
1988	1,967,269	59
1989	1,911,099	49
1990 (estimated)	1,900,600	46
1991 (estimated)	2,062,500	46
National Flight Data Center:		
1983	2,331,498	40
1984	2,376,300	45
1985	2,447,500	44
1986	2,053,287	43
1987	1,885,662	38
1988	2,058,553	44
1989	2,220,095	47
1990	2,604,373	47
1991 (estimated)	2,708,548	47

CENTRALIZED PROGRAMMING GROUP

Mr. LEHMAN. Would you also indicate for the record how much you are requesting for your centralized programming group and explain any increases proposed over the current year's funding?

[The information follows:]

The Air Traffic centralized programming group at the FAA's Technical Center is authorized 190 positions and $8,761,000 in FY 1990. No additional positions are included in the FY 1991 budget. We are requesting $8,914,000 in FY 1991, an increase of $153,000, to cover inflation and salary increases.

OATS

Mr. LEHMAN. Last year, we discussed an automatic data processing system referred to as "OATS". What is the total cost and status of this system?

Mr. GOLDMAN. We have another question that we answered previously on OATS, but the contract has been awarded. We have purchased around 200 personal computer systems off that contract at this point this year. Between Computer Based Instruction, between the Aviation Safety Analysis System and Remote Maintenance Monitoring, we expect it to be a rather large acquisition.

Mr. **Lehman**. Yes, but how much?

Mr. **Goldman**. Let me clarify it, but I think it's in the neighborhood of OATS this year—no, that is for support contracts. I'll have to give you the actual number for the record.

Mr. **Lehman**. For the record.

Mr. **Stoer**. Mr. Chairman, if I could add to that. The nature of your question implies that OATS is a system. OATS per se, is not a system as much as it is simply a contracting vehicle that allows us to acquire personal computers and work stations at the most economical price. In fact, we're able to finance the acquisition of those types of work stations from different parts of the Operations appropriation, depending on which program is benefitting, as well as a number of pieces of equipment financed in the Facilities and Equipment budget as well.

Admiral **Busey**. Think of OATS, Mr. Chairman, as really a catalog of equipment, desktop equipment and peripherals that can be ordered, similar to a GSA catalog. In other words, we ran a procurement, we've got a catalog now, and people can buy this standardized equipment from that catalog.

Mr. **Lehman**. Off the shelf.

Admiral **Busey**. At fixed prices, off the shelf.

Mr. **Pollard**. And, sir, if I could save some work, I looked at my notes—there's $9 million in fiscal year 1991 for the contract tower.

AIR TRAFFIC OTHER SERVICES

Mr. **Lehman**. You show a $10.4 million increase for air traffic other services in fiscal year 1991. What's the reason for the 11 percent increase?

Mr. **Pollard**. Approximately 4 percent of that is for inflation. The other increases is in aeronautical charting service, contract weather observation, and the other services that are part of the PCS.

Mr. **Lehman**. Please provide a detailed breakdown of these costs for fiscal years 1990 and 1991.

[The information follows:]

[In millions]

	Fiscal year—	
	1990	1991
Host Software Support Contract	$33.1	$34.7
Enroute Training Contract	24.0	25.0
NWS Admin Weather Observation	10.8	15.0
National Weather Observation—CWSU	4.3	4.5
Contract Tower	3.8	4.0
Airport Obstruction Charting Survey	3.5	5.0
Traffic Mgmt Sys Software Support	1.6	1.7
ATOMS Con Support for OPSNET	1.5	1.6
Reimb Agrmt FAA & NOAA/NWS	0.8	0.8
Model 1 Full Capacity	0.7	0.7

[In millions]

	Fiscal year—	
	1990	1991
Other Object Class 25	12.2	13.7
Total	96.3	106.7

SOLID STATE SYSTEMS

Mr. LEHMAN. Under NAS logistics it was indicated that the installation of solid state equipment has not enabled you to reduce your supply inventory since you are also maintaining the old system. What types of solid state systems are you installing and when do you believe they might begin to affect your supply inventory requirements? Is that the inventory you have out in Oklahoma City?

Mr. GOLDMAN. Yes, sir. The types of equipment that are coming off the production line now like the ASR-9 radars are examples of the solid equipments that are coming. But they still have not yet replaced some of the older type systems that are in the field. And unfortunately, until those older systems are replaced, we will have to maintain a fairly high inventory level.

As a matter of fact, though, between 1988 and 1989, the line items in the inventory is down, but we expect it to go back up again.

INVENTORY REPLENISHMENTS

Mr. LEHMAN. Would you update for the record the table on inventory replenishment that was included on page 469 of last year's hearing record?

[The information follows:]

	Amount
1986 (actual)	$20,928,800
1987 (actual)	19,402,800
1988 (actual)	37,013,000
1989 (actual)	22,880,900
1990 (estimate)	29,056,000
1991 (estimate)	28,374,000

AUTOMATED MATERIAL HANDLING SYSTEM

Mr. LEHMAN. Last year, it was indicated that your automated material handling system was partially commissioned. What's the current status?

Mr. GOLDMAN. The current status is that 75 percent of the system will be operational this year. The software that is controlling that operation will be up and operating in October.

Mr. LEHMAN. What's the current status of the—I was thinking about contracts instead of commission. I'm sorry.

Forty years ago, we were told that this system would be installed by the end of calendar 196 and would save about $1.7 million per year. Last year, we were told that the estimated savings would be only $500,000 because of delays in installing the system. Why are you saving less money?

Mr. GOLDMAN. The contractor that was providing the system did provide the hardware and only a portion of the software and then defaulted. So we had to pick up the pieces and in-house people are developing the software now, which I just talked about. But that has extended the time and obviously reduced the savings.

Mr. LEHMAN. How much shrinkage do you get in your inventory out there in your warehouses?

Mr. GOLDMAN. How much what?

Mr. LEHMAN. How much shrinkage per year?

Mr. GOLDMAN. We shrink about 5 percent. I can give you a specific number for the record.

[The information follows:]

In FY-1989 the total dollars reduced in inventory for all categories of shrinkage was $11,054,500.

Mr. LEHMAN. All right. For the record. That's a lot of money, though. How much of that is due to obsolescence and how much is due just to pilferage?

Mr. GOLDMAN. I have those numbers, but I don't have them right with me. I will get that to you for the record.

Obsolescence	$9,629,700
Other shrinkage	[1] 2,424,800

[1] Unlike some commercial storage and distribution areas we do not apply a percentage of loss to pilferage. Any reduction to inventory based on pilferage would be identified to a specific theft. The dollars reflected above in "other shrinkage" are those reductions to inventory based on: Rust, corrosion, crystallization, evaporation, vermin, price and quantity error adjustments. No shrinkage was identified to pilferage in FY-1989.

FAA HOUSING

Mr. LEHMAN. On page 40, you refer to the FAA owned and leased housing. How many housing units do you own, how many units do you lease, and what are the costs associated?

Mr. GOLDMAN. We own 231 houses. We lease 93 and it costs us $2.4 million each year. Part of those houses were damaged by Hurricane Hugo this past year.

CONTRACTUAL SERVICE COSTS

Mr. LEHMAN. Would you update for the record the two tables on contractual service costs and units repaired that were included on page 469 of last year's hearing record?

[The information follows:]

Contractual service costs

Comparative data on the contractual service program:

1986 (actual)	$10,896,400
1987 (actual)	13,518,800
1988 (actual)	11,425,000
1989 (actual)	12,024,100
1990 (estimate)	16,000,000
1991 (estimate)	27,113,200

COMPARATIVE DATA: EXCHANGE AND REPAIR (E&R) UNITS REPAIRED

	Commercial	In-house	Total
1986 (actual)	15,710	13,128	28,838
1987 (actual)	14,131	13,626	27,757

COMPARATIVE DATA: EXCHANGE AND REPAIR (E&R) UNITS REPAIRED—Continued

	Commercial	In-house	Total
1988 (actual)	15,727	15,479	31,206
1989 (actual)	11,510	19,582	31,092
1990 (estimate)	13,238	20,078	33,316
1991 (estimate)	21,771	21,100	42,871

POSITION INCREASES

Mr. LEHMAN. Would you explain your proposed increase of 54 positions which you refer to as a technical adjustment?

Mr. STOER. Yes, sir. A number of those positions were removed several years ago by OMB as an anticipatory reduction under A-76. Those reductions did not materialize. The positions were never vacated, so this is a restoration to make legitimate positions that are currently encumbered.

UTILITY RATES

Mr. LEHMAN. Your utility rates are increasing by more than inflation. Why?

Mr. GOLDMAN. Mainly because we have new facilities that are coming on line, both at the aeronautical center and the technical center, and we have the new systems that are coming into place and the new systems will use more electricity.

Mr. LEHMAN. What percentage does your budget assume?

Mr. GOLDMAN. 3.4 percent.

FIELD MAINTENANCE STAFFING

Mr. LEHMAN. Under system maintenance, you estimated that your field maintenance employment will be 8800 personnel as of September 30, 1990. What's the present level of employment?

Mr. AQUILANO. As of March 31, Mr. Chairman, we have field maintenance employment of 8636. It's a reduction of 10 from the start of the year. We still expect to reach the 8800 by the end of 1990.

Mr. LEHMAN. How many do you have now?

Mr. AQUILANO. We have 8636.

NEW FACILITIES

Mr. LEHMAN. You indicated you planned to commission 500 new facilities in fiscal year 1990. How much progress have you made to date and do you expect to meet your projected level?

Mr. AQUILANO. As of March 31, we have commissioned about 136 facilities. We fully expect to reach the 500 number.

Mr. LEHMAN. Among the facilities you planned to commission were 11 automated flight service stations, 20 microwave landing systems and 105 automated weather observing systems. Would you indicate how many of these have actually been commissioned to date?

[The information follows:]

Automated flight service station	0

Microwave landing system	0
Automated weather observing system	14

FY 1991 NEW FACILITIES

Mr. LEHMAN. Would you provide a listing of the new facilities planned for commissioning during fiscal year 1991?

[The information follows:]

Since the Congressional submission, facility planning data have been updated.

Revised listing of new facilities planned for commissioning during fiscal year 1991

Air route surveillance radar	2
Airport surface detection equipment	7
Airport surveillance radar	4
Automated radar terminal system	4
Air traffic control radar beacon	5
Radio communications link repeater	180
Radio communications link terminal	31
Terminal doppler weather radar	1
Automated flight service station	6
Automated weather observing system	54
Direction finder	49
Next generation weather radar	4
Remote center air/ground communications facility	15
Remote communications outlet	14
Approach light system	29
Distance measuring equipment	10
Instrument landing system	14
Microwave landing system	8
Omnidirectional airport lighting system	4
Runway end identification light	24
Runway visual range	55
Tactical air navigational equipment	4
Visual approach slope indicator	6
VHF omnidirectional range	12
Total	542

POSITIONS FOR NEW FACILITIES

Mr. LEHMAN. Would you also indicate for the record the estimated personnel increases associated with each of the various categories of new facilities scheduled to be commissioned as shown on pages 56 through 66 and also show decreases associated with any facilities that will be decommissioned during fiscal year 1991?

[The information follows:]

The commissioning schedule shown on pages 56 through 66 is based on planning data which has now been updated for question 4 above. The estimated personnel increases associated with the updated schedule, as well as decreases associated with anticipated facilities that will be decommissioned during fiscal year 1991, follow:

Maintenance

Commissionings—personnel increases:	
ARSR	7
ATCRB	3
ASDE	22
ASR	6
ARTS	13
RCLR	28
RCLT	3
TDWR (less than an employee year)	0
AFSS [1]	7
AWOS	14
DF	9

NXRAD	10
RCAG	6
RCO	3
ALS	10
DME	1
ILS	8
MLS	7
ODALS	1
REIL	2
RVR	8
TACR (less than an employee year)	0
VASI	1
VOR	4
Total personnel increases	173
Decommissionings—personnel decreases:	
RMLR	30
RMLT	4
FSS [2]	16
Total personnel decreases	50

[1] Includes personnel increases for automation equipment only; communications equipment comes from the old FSS sites.

[2] Only the buildings are decommissioned; other equipment either moves to the AFSS from the closed FSS or stays at the old FSS site as remoted equipment.

TOWERS AND FLIGHT SERVICE STATIONS

Mr. LEHMAN. Please provide a listing of the 15 VFR towers and 39 flight service stations proposed for decommissioning in fiscal year 1991.

[The information follows:]

The 15 VFR towers proposed for decommissioning in FY 1991 will not actually be decommissioned but will be transitioned from FAA-staffed towers to FAA contract towers. Specific place names have not yet been identified for the additional control towers planned for inclusion in the Contract Tower Program. However, the sites we are reviewing include operating FAA control towers, particularly those which do not meet criteria for continued operation as an FAA-staffed facility but would be cost effective to operate as a contract tower. Additionally, we will be reviewing the temporarily closed control towers to see if they meet criteria for inclusion in the program along with a few non-Federal towers which have been submitted for consideration for inclusion in the program.

The 39 flight service stations proposed for decommissioning are:

FSS	AFSS	Fiscal year quarter
Bettles, AK	Fairbanks, AK	4th
Northway, AK	......do	2nd
Tanana, AK	......do	4th
Big Delta, AK	......do	3rd
Yakutat, AK	Juneau, AK	2nd
Homer, AK	Kenai, AK	3rd
McGrath, AK	......do	2nd
Farewell, AK	......do	2nd
Tuscaloosa, AL	Anniston, AL	4th
Harrison, AR	Jonesboro, AR	4th
Little Rock, AR	......do	3rd
Pine Bluff, AR	......do	3rd
Crescent City, CA	Oakland, CA	4th
Lancaster, CA	Riverside, CA	2nd
Atlanta, GA	Macon, GA	3rd
Bowling Green, KY	Louisville, KY	2nd
Paducah, KY	......do	3rd
Billings, MT	Great Falls, MT	1st
Bozeman, MT	......do	2nd

FSS	AFSS	Fiscal year quarter
Butte, MT	do	3rd
Cut Bank, MT	do	2nd
Lewistown, MT	do	3rd
Livingston, MT	do	2nd
Miles City, MT	do	3rd
Missoula, MT	do	1st
Poughkeepsie, NY	Islip, NY	1st
Bradford, PA	Altoona, PA	3rd
Du Bois, PA	do	4th
Bristol, TN	Nashville, TN	4th
Crossville, TN	do	4th
Alice, TX	San Angelo, TX	4th
San Antonio, TX	do	4th
Wink, TX	do	4th
Newport News, VA	Leesburg, VA	2nd
Laramie, WY	Casper, WY	2nd
Rawlins, WY	do	2nd
Rock Springs, WY	do	3rd
Sheridan, WY	do	4th
Worland, WY	do	3rd

FIELD MAINTENANCE STAFFING

Mr. LEHMAN. On page 67, has your field maintenance overtime for fiscal year 1990 been consistent with your projection of 196,519 hours?

Mr. AQUILANO. Through March of 1990, it has followed that projection and we are on a pace to hit that projection.

Mr. LEHMAN. How many field maintenance retirements have you had to date during fiscal year 1990 and to what extent is this a concern to you?

Mr. AQUILANO. We had approximately 261 retirements through February of 1990, and we have three different programs going to address the problems those retirements create: one is to hire additional FAA technicians; a second is the field maintenance support contracts that we're working on. Finally, we have plans to transition new F&E staff into the maintenance work force following the F&E bubble.

OTHER OBJECTS

Mr. LEHMAN. Would you provide for the record a breakdown of your field maintenance other objects costs for fiscal years 1990 and 1991, including a brief explanation of any significant changes?

[The information follows:]

BREAKDOWN OF OTHER OBJECTS COSTS FOR FIELD MAINTENANCE

[In thousands of dollars]

	Fiscal year—	
	1990	1191
Travel	17,364	18,083
Transportation	11,204	11,668
RC&U	71,996	74,981
Printing and Reproduction	535	557

BREAKDOWN OF OTHER OBJECTS COSTS FOR FIELD MAINTENANCE—Continued

[In thousands of dollars]

	Fiscal year—	
	1990	1191
Other Services	68,541	68,449
Supplies and Materials	11,075	11,534
Equipment	6,359	5,180
Land and Structures	118	119
Insurance Claims	5	5
Total	187,197	190,576

No significant changes occurred between FY 1990 and FY 1991. Inflation and annualization composed the overall program change.

Mr. LEHMAN. On page 71, what percentage of inflation rate does your $7.491 million increase assume?

[The information follows:]

An inflation rate of 3.3 percent was utilized in accordance with OMB guidelines.

STAFFING INCREASES

Mr. LEHMAN. We have already discussed the requested increase in field maintenance staff. On page 72, you indicate that 31 additional positions are required for technical management of the operational telecommunications program, hazardous materials management and NAS plan transition coordination. Would you explain why you need staff increases in each of these areas?

Mr. AQUILANO. Yes, sir. We have not increased the staffing in the regional offices for the Airway Facilities Divisions in the past ten years. These three areas really need the staffing. FAA now operates a large network of communications facilities, including radio communication links, and a Data Multiplexing network, and we need additional staffing for the engineering of the network to optimize the services and the cost benefits.

Hazardous materials—we think we've got a large potential for vulnerability and we need to do careful management in this area and avoid future environmental or facility problems.

The last items is NAS plan transitioning and coordination. We need those people in the field to assure that we have the proper staffing to accept all the new systems that are coming into the NAS.

Mr. LEHMAN. Please expand on your answer for the record, including the fiscal year 1990 base levels and requested staff and dollar increases in each of these activities.

[The information follows:]

Over the last ten years, the Systems Maintenance regional offices have received no increases. The 31 positions requested are needed in the folowing areas:

Telecommunication Management & Operations

FAA now opearates a large network of communications facilities and is required to provide the following services in order to optimize cost benefits associated with this network.

Network Planning and Engineering
Circuit Engineering
Network Management

Administration and Budget of Leased Program
Database Management
Configuration Control

	Fiscal year—	
	1990 base	1991 increase
Positions	41	18
Funding	$1,918.8	$844.2

Hazardous Materials Management

This function will provide a high level visable and viable program emphasis needed due to increasing local and national scrutiny in the hazardous materials program. Some of the functional responsibilities are as follows:

Responsible for inspecting, sampling, and evaluating facilities for compliance with air, water, solid waste, hazardous materials/waste, and other environmental laws and regulations, and abatement of hazardous and toxic wastes.

Manages the facility restoration program, coordinates and reports asbestos removal and sampling, spill response and reporting, and underground tank upgrades and reporting.

	Fiscal year—	
	1990 base	1991 increase
Positions		4
Funding		$234.5

NAS Plan Transition Coordination

The F&E budget has grown from $250 million in FY 1981 to $2.5 billion in FY 1991. During those ten years when F&E deliveries to the field have grown substantially, our regional staffing has not been increased. The additional staff is required to ensure that these deliveries are properly coordinated and integrated into the existing NAS. Although there are numerous regional office personnel supporting this function, it is being done in a part-time manner. Since these personnel have other functional duties, other essential programs are suffering.

	Fiscal year—	
	1990 base	1991 increase
Positions	9	9
Funding	$421.2	$421.2

ENGINEERING SUPPORT SERVICES

Mr. LEHMAN. Two years ago, when you requested a 25 percent increase for engineering support services, we were told that this was a bubble that would last two to three years. Another increase was requested in fiscal year 1990. How reliable was your testimony two years ago, and when we will we see a decrease in these services?

Mr. AQUILANO. The testimony in 1989 was predicted on the then-present NAS plan scheduling. That schedule has slipped. Experience is showing that the new sophisticated NAS systems require a higher level of early post-commissioning engineering support than originally estimated. We will not see a reduction in this area until several years after the peak of the NAS plan.

Mr. LEHMAN. How much are you requesting for repairs to structures and grounds?

[The information follows:]

No additional funding was requested for repairs to structures and grounds.

MAINTENANCE PROGRAMS AND SERVICES

Mr. LEHMAN. Would you update for the record the information on page 476 of last year's hearing record showing budget estimates and obligations for special maintenance programs?

[The information follows:]

BUDGET ESTIMATES AND OBLIGATIONS FOR SPECIAL MAINTENANCE PROGRAMS

	Estimate	Obligated
1981 (actual)	$3,628,000	$4,026,700
1982 (actual)	3,628,000	4,789,945
1983 (actual)	4,431,000	8,070,600
1984 (actual)	4,875,300	7,169,549
1985 (actual)	6,080,000	6,004,025
1986 (actual)	2,000,000	3,294,000
1987 (actual)	5,252,600	4,805,300
1988 (actual)	4,300,000	3,542,000
1989 (actual)		3,032,998
1990 (estimate)	4,250,000	
1991 (estimate)	4,250,000	

CONTRACT MAINTENANCE

Mr. LEHMAN. Please also provide for the record the amount your fiscal year 1991 budget includes for contractor maintenance and how this compares with the levels of reach of the past four fiscal years.

[The information follows:]

Contract maintenance for FY 1987

[In thousands]

Fiscal year:	*Amount*
1987	$1,800.0
1988	11,206.0
1989	11,130.0
1990	19,330.0
1991	19,330.0

Over the last five years, we had a substantial increase in contract maintenance largely due to new programs such as the Host computer; Computer Aided Engineering Graphics system; Flight Service Automation System; and increases in the Integrated Communications Switching System. It is anticipated that this program will more than double in FY 1992 over the current FY 1991 base.

LEASED TELECOMMUNICATIONS

Mr. LEHMAN. Mr. Coughlin.

Mr. COUGHLIN. Thank you, Mr. Chairman. Turning to leased telecommunications, you are requesting an increase of about 6 percent for these costs, compared with increases of nearly 10 percent in the two previous years. We like that. Is this a one-year phenomenon or can we expect this trend to continue? Will technological advancements actually offset most of the costs associated with the anticipated growth of the national airspace system?

Mr. AQUILANO. The combination of the technological advances, our telecommunications initiatives, and increases in the competition will offset much of the costs associated with the growth in the NAS. Without programs such as the RCL, which I talked about a little while ago, and data multiplexing, as well as recompetition and improved telecommunications management, increases would exceed 20 percent annually.

However, the 6 percent increase this year is unusually low. The prior annual increase of 10 percent is more typical.

Mr. COUGHLIN. Would you update for the record the table on estimated cost increases for leased telecommunications services for the next five years similar to the information contained on page 478 of last year's hearing record?

[The information follows:]

The projected five-year telecommunications cost increases are shown in the table below. These leased telecommunications five-year estimates are developed in accordance with the programs described in current agency planning documents. The projected costs, therefore, are subject to change pending management's review, reassessment and approval of program requirements and unanticipated program increases or decreases.

Fiscal year:	*Estimated amounts*
1991	$16,223
1992	118,824
1993	41,432
1994	37,837
1995	42,071

Mr. COUGHLIN. On page 75, what is the status of your transition to a new telecommunications management system?

Mr. AQUILANO. The new telecommunications management operation, or TM&O program as we call it, is now in place and is performing its major functions: the budget planning and execution, network planning and engineering, performance tracking and telecommunications data management.

In fiscal year 1990, we established complementary TM&O organizations in each one of the FAA regional offices.

NONDISCRETIONARY PROGRAMS

Mr. COUGHLIN. On page 76, you state that all non-discretionary program increases are NAS plan projects and failure to provide funding will adversely affect planned cost savings that would be realized through these programs. Please indicate the cost savings for each non-discretionary NAS program listed on page 78.

[The information follows:]

It was not our intent on page 78 to suggest that all the NAS Plan programs would save dollars. We have provided a list below of the program savings for the Leased Telecommunications program.

Cost savings

	As of March 1990
DMN	24,145
ICSS	37,412

	As of March 1990
RCL	7,180

TELECOMMUNICATIONS MANAGEMENT

Mr. COUGHLIN. On page 77, your Defense Commercial Communications Office (DECCO) costs were relatively stable in fiscal years 1988 and 1989, but you are projecting significant increases in both fiscal years 1990 and 1991. What is the reason for this?

Mr. AQUILANO. DECCO costs were relatively stable in fiscal years 1988 and 1989 because the increased emphasis on telecommunications management resulted in initial savings and efficiencies. Many leased systems and equipment items were purchased or recontracted. The budgetary limitations and NAS program schedules reduced the growth of new services demands. Increases in 1990 and 1991 reflect the anticipated growth of the NAS.

Mr. COUGHLIN. What rate of inflation is assumed for your $8.8 million increase for item 2 on page 79?

Mr. AQUILANO. 3.3 percent.

Mr. COUGHLIN. Last year, we were told you were attempting to get a more equitable sharing of costs for the national security emergency preparedness telecommunications system because you get limited use from this system. You are requesting $9,152,000 for this system in fiscal year 1991. Are you still attempting to work out a better cost sharing arrangement?

Mr. AQUILANO. We are. In cooperation with OST, we are continuing to seek a better cost sharing arrangement for the national security emergency preparedness telecommunications costs. One step we are taking is to carefully review priority assignments to all circuits under the impending telecommunications services priorities.

Mr. COUGHLIN. Do you use the system at all?

Mr. AQUILANO. We do to a limited extent—we have a slightly different emphasis. The NSEP emphasis is mostly on switching systems, and we use dedicated lines to a large extent.

Mr. STOER. Mr. Coughlin, the primary purpose of that is for use in times of emergency. For example, during the earthquake in California when commercial lines and switching centers get overloaded. It provides for national emergency communications that will have a separate system that will bypass commercial circuits that allow governmental communications.

Mr. COUGHLIN. Did you use it during the earthquake?

Mr. STOER. I can't address that right now. I can double check.

[The information follows:]

No sir, it was not necessary to use this system during the earthquake.

DECCO INCREASE

Mr. COUGHLIN. Why are you requesting an increase of $3.5 million for DECCO that is in addition to your requested increase for inflation?

[The information follows:]

The Telecommunications Service Priority (TSP) system is required under FCC regulation. Telecommunications carriers are authorized to file tariffs for this service. The current Restoration Priority (RP) system carries no such charges. The estimated increases associated with TSP will begin to take effect September 10, 1990. The exact rates for these items are not known, since the carriers will not file their tariff applications until August 1990.

DATA MULTIPLEXING NETWORK

Mr. LEHMAN. On page 79, you are requesting an increase of $1,138,000 for your AWOS program. Please indicate, by year, the future cost increases and cost savings for this program.

[The information follows:]

AWOS

Increase (fiscal year):	
1992	$127.0
1993	85.0
1994	294.0
1995	294.0

There are no network cost savings associated with the AWOS program.

DATA MULTIPLEXING AND RCL

Mr. COUGHLIN. What is the status of phase 3 of your data multiplexing network?

Mr. AQUILANO. Contract award was April 9, 1990 to Contex Corporation for analog/digital multiplexing equipment. Contract award is projected for June of 1990 for statistical multiplexers, hardware implementation is scheduled for October 1990 through June of 1998.

Mr. COUGHLIN. Would you indicate for the record the future year costs to implement the RCL network similar to what was provided on page 479 of last year's hearing record?

[The information follows:]

RADIO COMMUNICATIONS LINK (RCL)

	Fiscal year—			
	1992	1993	1994	1995
Increase	3,105.0	0	0	0
Program decrease	−5,752.0	−2,876.0	0	0

REGIONAL PROGRAMS

Mr. COUGHLIN. You are requesting an increase of $5,723,000 for regional programs. Last year, we were told that the East Coast Plan was completed and the Central Region airspace resectorization plan would be completed by mid-190. Do you have any other major regional programs?

Mr. AQUILANO. We do. Major current regional programs include the safety and efficiency improvements at major airports such as Chicago-O'Hare; expansion and improvements in the Los Angeles basin, Denver and Dallas-Fort Worth areas; large scale competitive circuit replacements. Numerous smaller regional projects will support additional radar positions in airports, new radio frequencies and towers and en route centers, and new connectives between facilities.

LEASED SERVICES

Mr. COUGHLIN. Would you update for the record the table on leased services that was included on pages 481 and 482 of last year's hearing record?

[The information follows:]

Operational telecommunications (DECCO) - FY-1990

1. Enroute Data Services:

BDAT--Enroute Beacon Digitized Data	$29,470
RDAT--On Route Radar Digitized Data	587,335
ENAV--Enroute Navigational Aids	6,316,482
ERAD--Enroute Broadband Radar	177,692
ESEC--Enroute Broadband Secondary Radar	0
IDAT--Interfacility Data	231,393
	$7,342,372

2. Enroute Voice Services:

CFCS--Central Flow Control Service	$822,283
ECOM--Enroute Communications	21,614,277
ESYS--Enroute Equipment Systems	18,161,927
SVFA--Interphone Service F(A)	3,066,572
SVFB--Interphone Service F(B)	14,955,771
	$58,620,830

3. Terminal Data Services:

FDAT--Flight Data Entry and Printout (FDEP) and Flight Data Service	$584,438
RTAD--Remote Tower Alpha Display	0
RTRD--Remote Tower Radar Display	69,406
TARS--Terminal Automated Radar Service	0
TRAD--Terminal Radar Service	319,491
TSEC--Terminal Secondary Radar Service	3,749
TNAV--Terminal Navigational AIDS	962,420
VNAV--Visual Navigational AIDS	91,388
	$2,030,892

4. Terminal Voice Services:

ATIS--Automatic Terminal Information Svc	$33,662
SVFC--Interphone Service F(C)	4,280,197
TCOM--Terminal Communications	3,103,445
TSYS--Terminal Equipment Systems	22,316,697
	$29,734,001

5. Flight Service Station/Weather Data Svc:

AFTN--Aeronautical Fixed Tels. Network	$199,183
AWOS--Automatic Weather Observation Sys	391,790
FSAD--Flight Service Automated Data	967,695
LABS--Leased A B Service	14,767,657
METI--Meteorological Information	1,835,478
NFAX--National Facsimile Service	571,138
DFAX--Digital Facsimile Service	297,233
RWDS--Remote Radar Weather Display Svc	2,015,982
SVCA--Service A	715,485
SVCB--Service B	105,270
SVCO--Service O	52,912
	$21,919,823

6. Flight Svc Station/Weather Voice Svc:

DIRF--Direction Finding	$1,169,058
EFAS--Enroute Flight Advisory	2,491,808
FCOM--FSS Radio Voice Comms	8,914,691
FSYS--FSS Equipment Systems	17,874,425
PBRF--Pilot Briefing	6,569,832
	$37,019,814

7. Communications Utilities Data Svc:

ADIN--Autodin Service	$1,249,878
DMN --Data Multiplexing Network	5,674,602
NDNA--Nat'l Airspace Data Interchange Network (NADIN 1A)	871,720
	$7,796,200

8. Communications Utilities Voice Svc. Enroute Data Services:

AVON--Autovon Service:	$1,470,034
	$1,470,034

9. Other data services:

ADDA--Administrative Data	$199,865
MNTC-Maint. Monitoring Systems; Remote Maintenance Monitoring Sys (RMMS), Maintenance Monitoring Systems (MMS)	1,009,713
	$1,209,578

10. Other Voice Services:

CCCC--Staff Communications	$1,715,423
ADSY--Administrative Equip. Sys	2,138,868
ADVO--Administrative Voice	4,428,386
EVCS--Emergency Voice Comm. System	410,778
ETN--Electronic Tandem Network	510,590
MISC--Miscellaneous	1,268,474
NRCS--National Radio Comms. System	86,871
SVFD--Interphone Service F(D)	4,280,197
TRNG--Training	314,869
	$15,154,456
Subtotal (DECCO)	$182,298,000
Contracts:	
ARINC	$9,636,000
Other Contracts	30,903,000
Administrative Telecommunications	44,801,000
	$85,340,000
TOTAL	$267,638,000

NONRECURRING COSTS

Mr. COUGHLIN. Would you provide for the record a table for fiscal year 1991 similar to the one on page 483 of last year's hearing record indicating which of the items requested under telecommunications services are nonrecurring costs?

[The information follows:]

TOTAL ANNUAL COSTS FOR SERVICES PLANNED, FISCAL YEAR 1991

	Continuing NAS plan programs	Nonrecurring costs	Bal. of year cost for continuing services	Annual cost of 1991 request
Funds transferred to DECCO:				
Automatic Weather Observation System	$1,138,000	$224,000	$914,000	$1,828,000
Data Multiplexing Network	5,970,000	1,384,000	4,586,000	9,172,000
Flight Service Automation System	1,276,000	898,000	378,000	756,000
Integtated Communications Switching System	2,020,000	2,020,000	0	0
Long Range Navigation System	895,000	181,000	714,000	1,428,000
Radio Communications Link	8,112,000	6,972,000	1,140,000	2,280,000
Regional Programs	5,723,000	3,434,000	2,289,000	4,578,000
Traffic Management System	2,000,000	0	2,000,000	4,000,000
Paradyne Contract:				
Data Multiplexing Network Maintenance	369,000	0	369,000	738,000
Total	27,503,000	15,113,000	12,390,000	24,780,000

FTS 2000

Mr. COUGHLIN. On page 83, what future savings do you anticipate from the implementation of FTS 2000?

Mr. AQUILANO. We anticipate that the FTS 2000 will result in a rate savings of about 40 percent, as compared with the earlier FTS system. The current rate of 48 cents per minute is expected to drop to about 28 cents.

Increased call volume and the use of advanced FTS 2000 telecommunication features will offset some of those savings.

AVIATION STANDARDS ACTIVITY

Mr. COUGHLIN. Turning to aviation standards, we've already discussed some of your aviation standards activities. What do you consider to be your most significant regulatory action during the past year?

Mr. BRODERICK. I'd cite four, sir. In medicine, the industry drug testing rules; in security, the explosive detection systems for checked baggage; in flight standards, the pilot training rules, the advanced qualification program; and in aircraft certification, the airworthiness directives for structural modifications of the aging aircraft fleet.

Mr. COUGHLIN. On page EX-19, would you provide a breakdown of your fiscal years 1990 and 1991 other services, including an explanation of the major increases?

[The information follows:]

OTHER SERVICES
Operations Appropriations
Administration of Aviation Standards
(Dollars in Thousands)

	FY 89 Actual	FY 90 Column of the FY 91 Congressional	FY 91 Column of FY 91 Congressional	Difference FY 91 over FY 90
Reimbursement to airlines for screening devices	0	0	0	0
Contract Maintenance	65	65	67	2
On-the-Job Training for Flight Inspection & Procedures	1,453	1,569	1,706	137
Security investigations	321	502	545	43
Audio visual services	57	197	203	6
Federal Air Marshal	0	0	0	0
Contractual studies	0	0	0	0
USAF training of K-9 teams	367	367	712	345
AFIS II Programming to Support NAS Plan Flight Inspection	0	0	0	0
Substance Abuse Program	239	1,446	2,645	1,199
Master Labor Contract Tokyo	109	129	125	(4)
Flight Inspection Furnished by Iceland	99	67	69	2
JDL Contract for Personal Services for Clerical Functions	388	306	318	12
Physical examinations	2,236	2,356	2,429	73
Automated Datatron Contract for Aircraft Reg.	0	0	0	0
Administration System (ARRAS)	619	403	418	15
Storage of household effects	473	514	557	43
Flight Service Automation Systems (FSAS)	0	0	0	0
Flight/Nonflight training	341	323	365	42
Overhaul of aircraft engines	2,682	3,450	3,579	129
Aircraft rental	3,723	3,210	3,330	120
Regulatory analysis	0	0	0	0
Aviation inspection and repair/modifications	3,961	5,094	5,284	190
Aviation Safety analysis system (ASAS)	9,077	8,670	8,696	26
Repair, maintenance & inspection of equipment & buildings	1,056	973	1,005	32
Contractual time-sharing teleprocessing services	584	571	612	41
A-76 contractual services	142	182	189	7

OTHER SERVICES
Operations Appropriations
Administration of Aviation Standards
(Dollars in Thousands)

	FY 89 Actual	FY 90 Column of the FY 91 Congressional	FY 91 Column of the FY 91 Congressional	Difference FY 91 over FY 90
Contractual data processing services	3,008	2,700	2,575	(125)
Janitorial and guard services	1,192	1,289	2,001	712
Aeronautical charting services	0	0	0	0
Repair and maintenance of ADP equipment	468	509	540	31
Secure Communications Link	118	118	118	0
Automation support contract	1,561	1,058	1,042	(16)
Drug Modernization Project	0	0	879	879
Contractual training services	1,727	7,603	7,735	132
Supervisory Identification & Development	0	150	150	0
Job Task Analysis for Pilot & Flight Crew	0	0	0	0
Project SAFE	435	495	510	15
Aircraft Airworthiness Composite and Major Repairs	0	0	0	0
Aircraft Evaluation Group	0	0	0	0
Aging Aircraft	0	0	0	0
Accident Prevention Program	0	0	0	0
Dev of Flight Standards District Human Res Guides	104	104	104	0
NASIP Inspections	0	240	240	0
Society of Automotive Engineers	85	85	85	0
Repair and maintenance of common-use office equipment	0	0	0	0
Special studies	0	0	0	0
Medical clinic service for ARTCC's	188	0	0	0
Federal Law Enforcement Training	0	0	385	385
Project SMART	848	705	740	35
Military Handbooks	160	160	160	0
Aviation Safety Reporting System (ASRS)	1,900	1,900	1,900	0
Industry Durg Compliance Program	2,354	4,689	4,689	0
National Airspace Info Monitoring System	2,826	2,000	2,000	0
System Safety Efficiency Review	725	800	800	0
National Aviation Safety Data Center	800	800	800	0
Oversight Investigations/Analysis	0	700	700	0
*Not otherwise classified	2,903	6,071	4,338	(1,733)
Total Other Services	49,394	62,570	65,345	2,775

Increases due to drug initiatives and inflation

*Numerous Miscellaneous Contracts

SAFETY INSPECTOR STAFFING

Mr. COUGHLIN. On page 97, you are requesting an additional 100 safety inspector support positions when your estimated end-of-year employment is already more than 200 personnel below your authorized positions. Why is that?

Mr. BRODERICK. As we indicated in discussions earlier in the hearing, the positions accurately reflect the staffing standard requirements. FTEs, dollars and end-of-year employment are actually independent variables. We will be able to make use of those positions if we can economize in other places on the dollars.

K-9 TRAINING

Mr. COUGHLIN. On page 107, why are your K-9 training contract costs increasing by nearly 100 percent?

Mr. BELGER. We will be negotiating a new agreement with the Air Force, who supports us on this activity. I think we'll be playing catch up. Our current costs exceed what we are reimbursing the Air Force.

GUARD SERVICE CONTRACT

Mr. COUGHLIN. You are requesting more than a 100 percent increase for your guard service contract for FOB-10A and you state that this increase has resulted from a contractor adjustment for inflation. Certainly we have not had 117 percent inflation. Have you considered finding a different contractor?

Mr. BELGER. Our costs for this contract is based on FAA's share of a contract that was negotiated by the Department of Transportation for buildings which house DOT employees. Our share of the cost, in addition to inflation, is based on the number of FAA's employees that are in FOB-10A. Because that number has increased, our costs as a share of the total, are going to increase. 1991 will be the last year of this contract. The Department is renegotiating a new contract in fiscal year 1992.

Mr. COUGHLIN. Is FOB-10A your main building?

Mr. BELGER. Yes, sir.

SECURITY SUPPORT PERSONNEL

Mr. COUGHLIN. We have already discussed some of the requested personnel increases under this activity. On page 109, where will your 34 additional security support personnel be located?

[The information follows:]

Of the 34 additional support personnel, 27 administrative/clerical positions will be distributed to the field and 7 will be located in the Washington office of Civil Aviation Security.

FLIGHT PROCEDURES STAFFING

Mr. COUGHLIN. You are requesting an increase of four positions to revise and development instrument flight procedures. How many personnel do you currently have assigned to this activity?

Mr. BELGER. We currently have 95 positions assigned to this activity.

Mr. **Coughlin**. You are only projecting a 4 percent increase in your flight procedure workload in fiscal year 1991 and virtually no increases in your other flight program workload. With 778 positions assigned to your flight program, why can't you handle this with your existing staff?

Mr. **Belger**. The problem here is one of backlog. The number of procedures associated with LORAN-C and MLS have caused a tremendous backload in our ability to keep up with approving the procedures.

AIRMEN AND AIRCRAFT REGISTRY

Mr. **Coughlin**. On page 100, how did you determine the level of users' fees for your airmen and aircraft registry reporting system?

Mr. **Belger**. The volume of activity was estimated based on our knowledge of historical data and the costs for the collections were estimated using the amount which was established by the Office of Inspector General as the actual cost of the FAA to provide the service.

Mr. **Coughlin**. Do you eventually intend to recover the full cost of this program?

Mr. **Belger**. We don't think that we will eventually fund the entire cost, no, sir.

Mr. **Coughlin**. Why not?

Mr. **Belger**. I think partly because there are other activities of the registry that aren't directly related to these activities for which we can collect the costs.

DRUG ABATEMENT FUNDING

Mr. **Coughlin**. Please indicate for the record the funding base for your drug abatement program.

[The information follows:]

The FY 1990 funding base for the drug abatement program is $5,452,000.

AVIATION SAFETY POSITIONS

Mr. **Coughlin**. On page 112, you are requesting five additional aviation safety positions. Why do you need this increase, particularly since you are not proposing any increase in aviation safety FTEs or end-of-year employment?

Mr. **Broderick**. Why don't we supply that answer for the record, sir.

[The information follows:]

These positions have been targeted to support the new quality assurance programs and the system safety and efficiency reviews which are currently being conducted for the FAA. The FTEs and end of year employment levels to support the additional positions will be attained through internal reallocation.

DISABILITY RATES

Mr. **Coughlin**. That's fine. Would you update for the record the information on disability retirement rates and separations that was included on page 489 of last year's hearing report?

[The information follows:]

DISABILITY RETIREMENT RATES FOR AIR TRAFFIC FACILITIES

Fiscal year	FSS rate/100	Center rate/100	Tower rate/100
1978	1.91	2.61	2.55
1979	1.47	2.47	2.41
1980	1.38	1.37	1.94
1981	0.59	0.56	0.87
1982	.72	.49	.56
1983	.32	.23	.30
1984	.77	.21	.26
1985	.50	.25	.19
1986	.56	.26	.25
1987	.24	.13	.18
1988	.25	.08	.11
1989	.17	.09	.13

MEDICAL DISABILITY SEPARATIONS AND MEDICAL DISABILITY RETIREMENTS SELECTED AIR TRAFFIC OCCUPATIONS, FISCAL YEAR 1973–89

Fiscal year	Center and tower	Flight service station
1973	189	51
1974	76	57
1975	178	115
1976	546	139
1977	613	104
1978	550	93
1979	524	71
1980	363	67
1981	140	28
1982	70	32
1983	44	14
1984	39	34
1985	37	22
1986	43	24
1987	100	28
1988	18	10
1989	21	7

CONTROLLER HEALTH PROGRAM

Mr. COUGHLIN. Would you also update for the record the table on page 490 of last year's hearing record showing the total cost of your air traffic controller health program?

[The information follows:]

The estimated cost of the Air Traffic Control Specialist Health Program for FY 1989, 1990 and 1991 is:

Fiscal year:	*Estimated cost*
1989	$5,705.5
1990	7,109.9
1991	8,324.8

FLIGHT HOURS

Mr. COUGHLIN. On page 91, you are projecting 58,249 flight hours for fiscal year 1990. Are you on target to reach this level?

Mr. BELGER. We are on target. Through the first half of the year, we've used about 48 percent of that total.

Mr. COUGHLIN. Please provide for the record the number of flight hours for each activity (inspection, training, etc.) for the first six months.

[The information follows:]

[Data as of March 31, 1990]

Activity	Flight-hours
Flight inspection	12,031
Logistics	243
Evaluation, currency, and transportation	10,207
Training	4,237
Research and development	755
Total	27,473

PILOT CURRENCY REQUIREMENTS

Mr. COUGHLIN. Would you indicate for the record the number and percentage of your pilots who met their currency requirements for the past six months?

[The information follows:]

As of March 1, 1990, there were 1,368 pilot participants in the ECT flight program, and 936 or 68 percent met the currency requirements for the past 6 months.

FAA OPERATING COSTS

Mr. COUGHLIN. Would you also update for the record the tables on FAA aircraft and operating costs, as well as full-time pilots and salary costs that were included on pages 490 and 491 of last year's hearing record?

[The information follows:]

	FY-89	FY-90	FY-91
Number of aircraft	64	[1] 63	63
Estimated operating cost:			
Operations direct	$65,074,000	$66,720,000	$68,957,000
Facilities and equipment	8,676,500	12,834,100	31,174,400
Total operating cost	$73,750,500	$79,554,000	$100,131,400

[1] There are currently 64 airplanes in the fleet; however, one of these is on loan to the U.S. Marshal Service.

FULL-TIME PILOTS AND SALARY COST

	FY-89		FY-90		FY-91	
	No.	Amount	No.	Amount	No.	Amount
Operations	98	$4,571,965	98	$4,755,823	98	$4,776,609
Research and development	10	516,191	10	534,745	10	535,577
Facilities and equipment [1]	6	280,054	6	291,452	6	292,866
Total	114	$5,368,210	114	$5,582,020	114	$5,605,052

[1] Represents cost of flight inspections of various airway facilities.

AIRCRAFT CERTIFICATIONS

Mr. COUGHLIN. Would you update for the record the table on aircraft certifications that was included on pages 492 through 495 of last year's hearing record, including an identification of those certifications that were completed during the past year?

[The information follows:]

AIRCRAFT CERTIFICTAION PROGRAM
STATUS OF INDIVIDUAL TYPE CERTIFICATION PROGRAMS

MODEL	TYPE AIRCRAFT	STATUS PERCENTAGE COMPLETED
	TRANSPORT AIRPLANES	
ACME Avolet		0
Aerospatiale ATR-72		100
Airbus A-330		0
Airbus A-340		0
BAE 125-1080		60
BAE 4100		10
Beech 400A		45
Boeing 737-500		100
Boeing 777		0
Bromon BR-2000		Cancelied
Canadair CL-600 Regional Jet		10
CASA C-212DE		80
CASA C-212DF		100
CASA CN-235-100		100
CASA 235-200		10
deHavilland DHC-8-300		100
Dornier 328		10
Embraer EMB 123		20
Embraer 145		0
F28MK0100		100
Falcon 20-(X)5		100
Falcon 2000		0
McDonnell Douglas MD-11		25
McDonnell Douglas MD-90-10		10
McDonnell Douglas MD-90-30		10
McDonnell Douglas MD-91/92		Cancelled
SAAB 340B		100
SAAB 340-2000		10

TRANSPORT HELICOPTERS

Aerospatiale SA332L-2	90
Aerospatiale SA365N-2	100
Bell 205B	100
Bell 230	5
Boeing 360	10
E.H. Industries Limited EG101-1-100	50
E.H. Industries Limited EH101-2-100	50
Pezetel W-3	5
Sikorsky CS-70C	100
Sikorsky S-76A	100
Sikorsky 576C	5

TRANSPORT POWERED LIFT

Bell/Boeing Model 900 Tiltrotor	0
Bell/Boeing V-22 Tiltrotor	5

AIRCRAFT CERTIFICTAION PROGRAM
STATUS OF INDIVIDUAL TYPE CERTIFICATION PROGRAMS

MODEL	TYPE AIRCRAFT	STATUS PERCENTAGE COMPLETED
	SMALL AIRPLANES	
Air Tractor AT-200		2
Air Tractor AT-501		100
Air Tractor AT-802		0
ARV Aviation Ltd. ARV-1		5
AVTEC 400		Cancelled
Caproni C22J		75
Carmack		5
CEKAUR EAGER		0
Celair		0
Dovora 100		37
Dornier CD2		75
Dornier Do 228-212		80
Edgley EA7 (Brooks Aerospace Group OA-7)		85
Embraer EMB121		0
Exotic Engineer 227		5
Extra-Plugzeugbau Extra 300		2
Fairchild SA227-CC and SA227-DC		95
Fairchild SA228-AE		Cancelled
Fairchild SA227-BC		100
Flint Aero 6000		0
Globe Swift		Cancelled
Government Aircraft Factories N225		70
Grob G-115A		0
Grob G-115B		0
Grob G-115C		0
Grob Egrett		65
Gyroflug SC 01		95
Gyroflug EURO-2000		0
International Aero TA16 (Aerofab, Inc.)		15
Kings Engine 44		67
LoPresti/Piper LP-1		0
Maule MX7420		100
Nomad N225		100
Nova 2		0
Omac LAXER 300		50 N/A

Partenavia P-86 Mosquito	5
Pezetel 106BS4	0
Pezetel M-20	0
Piaggio P-180	95
Pilatus PC-6 B2 Hel	10
Pilatus PC-12	20
Schweizer SA2.37A	30
SIAI Marchetti SF-600	90
SIAI Marchetti F-1300 Squalus	0
Skytrader 1400	Cancelled
Snow S-10	5
SOCATA TBM700	10
SOCATA TDN90D	50
Spartan NP	0
Spectrum SA550	15
Swearingen SA-3	25
Wheeler PR4-200	0

AIRCRAFT CERTIFICTAION PROGRAM
STATUS OF INDIVIDUAL TYPE CERTIFICATION PROGRAMS

MODEL	TYPE AIRCRAFT	STATUS PERCENTAGE COMPLETED
	SMALL HELICOPTERS	
Aerospatiale 350B2		100
Agusta A109C		100
Agusta A109A		100
Bell 406T		Cancelled
CENEME5A FM-7		Cancelled
Enstream TH-28		40
Groen Hawk Auto Gyro Model 1A & 2A		5
MDHC 500N (NOTAR)		25
MDHC 0900 (NOTAR)		5
MDHC 364D & E		100
MDHC 369L		80
MDHC 369J		5
Robinson RH44		20
Schweizer 269D		25
Skyhawk Air-Jet		0
Tridair Twin 206		20
	SMALL POWERED LIFT	
Magnum Model 201		0
Vulcan Ducted Fan		0

AIRCRAFT CERTIFICTAION PROGRAM
STATUS OF INDIVIDUAL TYPE CERTIFICATION PROGRAMS

MODEL	TYPE AIRCRAFT	STATUS PERCENTAGE COMPLETED
	ENGINES	
Allison T406 (Tiltrotor)		0
CFM International CFM56-5A2		100
CFM International CFM56-5A3		100
CFM International CFM56-5A4		10
CFM International CFM56-5A5		10
CFM International CFM56-5C2		5
Continental TP 500-01		0
Garrett TFE 731-4		5
Garrett TFE 731-5B/-5BR		50
Garrett TPE 331-12D		5
Garrett TPE 331-12 VER		30
Garrett TPE 331-14F		50
Garrett TPR 351-20		5
Garrett TPE 331-14 GR/HR		5
General Electric/Alfa Fiat CT7-6"AF" & CT7-6A-"AF"		15
General Electric CF6-38		2
General Electric CF6-80C2B1F1		75
General Electric CF6-80E1		5
General Electric CF343A1		10
General Electric CT7-5A3		100
General Electric CT7-7A1		100
General Electric CT7-2D1		100
General Electric/Garrett CFE738		1
General Electric GE 36		5
General Electric/Textron Lycoming GLC-38-1		1
International Aero Engines V2500		10
International Aero Engines V2500-A5		1
LHTEC CTS800		40
MDHC Notar		5
Norton P64		1
Pratt & Whitney Canada PT6A-64		100
Pratt & Whitney Canada PT6A-114A		100
Pratt & Whitney Canada PW119		1
Pratt & Whitney Canada PW124B		100
Pratt & Whitney Canada PW126A		100
Pratt & Whitney Canada PW305		1
Pratt & Whitney PW2041		80
Pratt & Whitney PW4050		100
Pratt & Whitney PW4060A		100
Pratt & Whitney PW4062		10
Pratt & Whitney PW4164		10
Pratt & Whitney PW4168		10
Pratt & Whitney Propfan Program		3

AIRCRAFT CERTIFICTAION PROGRAM
STATUS OF INDIVIDUAL TYPE CERTIFICATION PROGRAMS

MODEL	TYPE AIRCRAFT	STATUS PERCENTAGE COMPLETED
	ENGINES	
Rolls Royce Limited TAY 610 & 620		30
Rolls-Royce RB211-524G2-19		100
Rolls-Royce RB211-524G3-19		100
Rolls-Royce RB211-524H-36		100
Rolls-Royce RB211-524H2-19		10
Rolls-Royce Tay 611-8B		100
Rolls-Royce Tay 650-14		50
Textron Lycoming ALF502R-5A		1
Textron Lycoming ALF502R-6A		1
Textron Lycoming TIO-540-AZ2A		10
Turbomeca Arriel 1C2		1
Turbomeca Arriel 1D1		1
Turbomeca Arriel 1D2		1
Tubromeca Arriel 1E		1
Williams FJ4		0

AIRCRAFT CERTIFICTAION PROGRAM
STATUS OF INDIVIDUAL TYPE CERTIFICATION PROGRAMS

MODEL	TYPE AIRCRAFT	STATUS PERCENTAGE COMPLETED
	PROPELLERS	
Dowty Rotol R352		92
Great American Propeller Model TO 43BFK & 56 BFK		5
Hamilton Std. 15WF-3/-5		25
Hartzell HCA6A3		0
Hartzell HCD4A31		0
Hoffman HO-V123		95 N/A
Hoffman HOV/113B		70
Hoffman HO-4/50 AHM-185-105		100
Hoffman H008 ( )HM160S		22
McCauley 4JFR34C		0
MT-Propeller Entwicklung Model MTV-6-C		89
	AIRSHIP	
Advanced Airship Corp., ANR-01		5
Airship Inc. Skyship		100
Airship International		Cancelled
Airship Industries Skyship 500HL		10
American Blimp		5
Goodyear GZ-22		100
J. Thompson Airship		0
Thunder & Colt, GA-42		5
U-Lita UM-20		5
U.S. LTA		50
	GLIDERS	
IPE KW-1		Cancelled
Rollanden-Schneider Flugzeuban SL6		25
Schleicher Segelglugzenlai ASW-20		5
Scheicher ASK-23		70
	BALLOONS, MANNED FREE	
Ball Alof W-7A		65
Gage Skysailor 55V3X3		40
Solo SS103		0

AVIATION SAFETY ANALYSIS SYSTEM

Mr. COUGHLIN. What is the status of the aviation safety analysis system (ASAS) program and how much does your fiscal year 1991 budget include for ASAS?

Mr. BRODERICK. We have about 42 subsystems or software programs in ASAS, 28 of which are fully operational and 14 are in various stages of development. We have in fact made major advances which we're very pleased with in integrating all those systems.

But the critical problem we have is replacement of outdated and failing microcomputer equipment. This is the OATS program we talked about. Our budget for 1991 requests a total of about $33 million for the entire ASAS program. One-quarter of that is for operation and maintenance of the existing system; three-quarters of that amount is for procurement of the required work stations for the aviation and safety inspectors, security inspectors, and people in the field off of the OATS catalog that the administrator referred to earlier.

AVIATION SAFETY AND SECURITY

Mr. COUGHLIN. We have already discussed your security program to some extent. How many of your 684 authorized security positions are currently filled?

Mr. BELGER. As of March 31, 539 positions were filled.

Mr. COUGHLIN. Would you update for the record the aviation security tables on pages 497 and 498 of last year's hearing record?

[The information follows:]

Civil Aviation Security
Airline Passenger Screening Results

(January 1981-June 1989)

	1981 Jan-Jun	1981 July-Dec	1982 Jan-June	1982 July-Dec	1983 Jan-Jun	1983 July-Dec	1984 Jan-Jun	1984 July-Dec	1985 Jan-Jun	1985 July-Dec	1986 Jan-Jun	1986 July-Dec	1987 Jan-Jun	1987 July-Dec	1988 Jan-Jun	1988 July-Dec	1989 Jan-June
Persons Screened (Millions)	294.4	304.1	319.5	310.7	313.9	385.2	387.4	408.2	481.1	511.8	560.3	606.0	548.7	546.9	531.2	523.7	536.9
Weapons Detected																	
Firearms	971	1284	1286	1390	1363	1421	1325	1632	1448	1539	1525	1716	1646	1607	1291	1482	1416
(1) Handguns	915	1209	1243	1316	1303	1331	1265	1501	1385	1438	1416	1566	1519	1493	1226	1385	1127
(2) Long Guns	7	37	16	41	22	45	31	69	38	52	48	97	49	51	18	36	26
(3) Other	49	38	27	33	38	45	29	62	25	49	61	53	78	63	47	61	263
Explosive/Incendiary Devices	8	3	0	1	4	0	4	2	5	7	4	7	5	9	8	3	16
Persons Arrested																	
For Carriage of Firearms/ Explosives	534	663	561	663	633	649	585	720	602	708	646	770	734	847	679	814	672
For Giving False Information	34	15	21	6	7	27	6	21	17	25	64	25	44	37	123	98	30

Source: Reports of Passenger Screening Activitiesat U.S. Airports

Exhibit 7

As of 6/30/89

Civil Aviation Security
Compliance and Enforcement Actions

	1973 Through 1981	1982	1983	1984	1985	1986	1987	1988	1989
U.S. AIR CARRIERS									
Warnings	2,043	164	231	191	426	439	489	791	100
Letters of Correction	1,022	98	51	104	101	156	140	124	24
Non Enforcement Actions	541	44	52	33	39	79	107	214	117
Civil Penalties (Amount)	423 ($434,197)	28 ($10,508)	37 ($26,861)	56 ($62,300)	42 ($105,296)	83 ($122,221)	160 ($340,850)	196 ($298,735)	34 ($47,018)
Investigations Closed	4,029	334	371	384	608	757	896	1,325	275
Investigations Pending	416	91	163	88	145	362	1,262	2,279	2,184
FOREIGN AIR CARRIERS									
Warnings	21	2	3	5	11	8	17	31	5
Letters of Correction	44	2	1	0	3	13	9	30	1
Non Enforcement Actions	29	2	2	3	4	6	5	4	1
Civil Penalties (Amount)	2 ($25,000)	0	0	3 ($6,000)	0	0	2 ($26,000)	1 ($1,800)	0
Investigations Closed	96	6	6	11	18	27	33	67	7
Investigations Pending	36	4	4	1	7	13	55	104	66
AIRPORTS									
Warnings	797	59	57	43	53	60	46	46	16
Letters of Correction	535	21	9	14	24	27	32	49	17
Non Enforcement Actions	147	9	18	16	10	22	28	15	17
Civil Penalties (Amount)	128 ($96,025)	8 ($6,300)	8 ($7,250)	7 ($6,750)	6 ($10,900)	15 ($16,950)	26 ($28,650)	56 ($53,750)	8 ($115,300)
Investigations Closed	1,607	97	92	80	93	124	132	166	58
Investigations Pending	194	18	14	12	25	58	258	451	488
INDIVIDUALS									
Administrative Corrections	4,451	2,267	2,474	1,964	2,450	1,430	2,158	1,044	149
Non Enforcement Actions	543	161	207	173	171	238	264	245	133
Civil Penalties (Amount)	471 ($92,270)	114 ($28,095)	270 ($84,190)	251 ($79,429)	278 ($80,705)	391 ($129,292)	449 ($183,770)	618 ($258,218)	133 ($71,670)
Investigations Closed	5,445	2,542	2,951	2,388	2,899	2,059	2,871	1,907	415
Investigations Pending	1,324	483	550	662	508	813	3,360	3,701	3,481

Exhibit 8

As of 6/30/[illegible]
89

AVIATION SAFETY SPECIAL STUDIES

Mr. COUGHLIN. Would you update for the record the information on aviation safety special studies that was included on pages 500 through 503 of last year's hearing record?

[The information follows:]

1. The FAA implemented the Aviation Safety Reporting Program (ASRP) on May 1, 1975. Since that time, the volume of intake reports has increased significantly from a weekly average of 100 to more than 750 reports a week. Data from the program is used to resolve safety problems, change or develop rules, publish safety reports, improve training programs, and to support important research programs such as the National Human Factors Research Plan. We are currently operating at a funding level of $1.9 million.

2. In December 1988, the FAA established the National Aviation Safety Data Center to serve as a focal point for safety information and provide the FAA with an organizational unit which possesses both knowledge of the availability of safety information/data as well as expertise in its uses and applications. The Safety Data Center will develop automated capability to perform safety analysis on an integrated basis across multiple data bases, provide technical assistance to data base managers in the development of data standards and quality assurance programs, and expand the availability, distribution, and exchange of safety data and information. Procedurally, the FAA airspace incident data bases will serve as the core of the Safety Data Center which will be incrementally expanded through the addition of other information systems containing information needed for safety analysis and monitoring. During the past year, the Office of Safety Analysis completed a Safety Data Center Macro plan which describes the system conceptually and identifies principal system functions, prepared system requirements, finalized a system software/hardware evaluation and currently is re-engineering the airspace incident data base to serve as a prototype.

3. The Office of Safety Oversight conducts studies, and initiates projects that provide a second voice or opinion separate from the office of primary interest on issues that are related to human factors, flight operations, airworthiness, aircraft and airman certification, passenger safety, air traffic control, aviation security, aviation technology, and the National Airspace System. Specific programs that are managed within this office include the Aviation Safety Hotline, Aviation Safety Reporting Program, Runway Incursion Program, and the Back To Basics Program. We also plan to continue our efforts to reduce pilot deviations, ATC operational errors and near midair collisions, and will require funding to continue our educational efforts, analysis of data, and corrective action as necessary.

The Back To Basics Program, provides products and services in support of essential safety initiatives. This will support Accident Prevention Program activities, specialized safety training for pilots and other members of the aviation community, and products such as videos, films, books, and other printed material related to aviation safety.

4. The Safety Analysis Program, which was initiated in 1983, consists of in-depth analyses and studies of aviation safety issues in support of FAA decision making. The Safety Analysis Program includes analyses and research to identify and examine potential safety problems and evaluate alternative safety recommendations, regulations, policies, and procedures. The program employs qualitative and quantitative methods to analyze problems of a systemic nature and to become more proactive in resolving safety problems before they result in catastrophes. Current and anticipated analyses and studies include an in-depth study of general aviation safety and a detailed analysis of exposure measures that can be used in assessing relative safety levels in general aviation; a study of factors which may be affecting the safety of the air traffic control system including the relationship between operational errors, controller training, experience, etc.; a study of the relationship between air carrier financial condition, as well as the rapid change in the structure of the industry, and safety performance; and the correlation between inspection results and reported service difficulties. Also included is the preparation of the Congressionally mandated annual report on the effect of airline deregulation on the level of safety.

5 ~~4~~. The Safety Indicators Program includes the development and implementation of indicators which will be used to monitor the current safety level of the National Aviation System and to detect emerging safety issues and potential problems. In the language accompanying the FY-88 DOT Appropriation Bill, the FAA was asked to design, develop, and implement a comprehensive set of safety indicators which may be used to evaluate the safety performance of the National Aviation System. Current indicators will provide an assessment of the current state of safety in the National Aviation System, and leading indicators will identify potential or emerging aviation safety problems so that corrective action may be initiated. Leading indicators will be used by FAA managers to guide the deployment of FAA resources to address these emerging issues and potential problems. Resources are required to identify, analyze and validate safety measures; to consult closely with the National Transportation Safety Board, representatives of the aviation user community and such other organizations that possess pertinent expertise, as directed by the Congress; and to develop an automated process for calculating, monitoring, and reporting the indicators.

6~~8~~. The opportunity for acquisition and analysis of aviation safety data from foreign countries has been advanced significantly through data and information exchange agreements among members of the International Data Exchange on Aviation Safety (IDEAS) committee. A common data exchange record format has been developed for accident data; and tapes containing 1986 through 1989 FAA accident and incident data, in this common format, have been distributed to three IDEAS members. Future work will focus on the continuing exchange of accident and incident data and possibly human factors data.

7~~9~~. The FAA System Safety Program is a management and engineering discipline designed to enhance safety by applying proven state-of-the-art analyses, studies and reporting to major areas of concern. These areas include major systems acquisitions, major ATC procedural changes and major software implementations. Development of the FAA System Safety Program was completed in 1989 by the office of the Assistant Administrator for Aviation Safety and successfully demonstrated on two major FAA programs in 1990. Final coordination with the Executive Directors is expected during 1990, with sign-off by the Administrator before the end of the fiscal year.

8 M. In August 1988, Aviation Safety initiated a new type of review process called the System Safety and Efficiency Review (SSER), which are comprehensive, interdisciplinary evaluations of all FAA field operations that directly affect aviation safety. An SSER is conducted similarly to an accident investigation. It is comprised of highly qualified technical teams of FAA and other government and industry representatives who review a specific portion of the airspace system and recommend actions to improve safety and efficiency. Thus far, nine reviews have been conducted: General Aviation Compliance and Enforcement, San Francisco Bay Area, Chicago O'Hare, San Diego Lindbergh, New York, Boston, Philadelphia, Washington, D.C., and the Northeast Corridor. (New York, Boston, Philadelphia, Washington, are part of the comprehensive look at operations in the Northeast Corridor of the United States.) A review of the Notice to Airmen (NOTAM) system is currently underway, with an expected completion date of September 1990. This review process has achieved wide acceptance and support in the aviation industry and Congress. These reviews are a part of agency objectives.

SSER activities require extensive administrative and logistical support, as well as detailed and technical recording of proceedings and the preparation of final reports which are presented to the FAA Administrator, the Secretary, industry and members of Congress.

NEW PROGRAM

9- In FY 1991, the Safety Information Staff will continue to respond to the informational needs of the aviation community and the Assistant Administrator for Aviation Safety. Safety outreach is being achieved through the development of a national aviation safety publication targeted to a broad aviation audience--this is a first of its kind publication for the FAA. Other outreach efforts will include air show exhibits, national and international conferences, videotapes, and other printed materials. Informational needs within the FAA are achieved by supplying top quality issue papers on current and future topics that impact the FAA safety policy.

SAF

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FY-89 Program	Type Program	1990 FY-[redacted] Cost	Estimated Completion Date
NASA/ASRP	Ongoing	1,900	Sept. 1992
National Aviation Safety Data Center (subsystems include: Quality Assurance of FAA Aviation Safety Data; Accident/Incident Trend Analysis; Safety Indicator Program; Development and Maintenance of Near Midair Collisions, Operational Errors, and Pilot Deviations Data Bases)	Ongoing	3,100	
Pilot Medical/Flight Time Analysis	Cont'd	0	Sept. 1990
Safety Analysis	Ongoing	400	
Acquisition and analysis of International Safety Data	Ongoing	50	

DEVELOPMENT DIRECTION

Mr. COUGHLIN. You are requesting 150 positions and $15,321,000 for your development direction activity which you indicate provides for the planning, directing, monitoring and coordinating of your research and development program. What has been the most significant accomplishment under this activity during the past year?

Mr. POZESKY. Mr. Chairman, the most significant accomplishment would be the oversight of the various R&D initiatives that we've undertaken and the effort that we have done for security management and safety management at our New Jersey facility, the tech center. We can provide additional information for the record.

[The information follows:]

In the capacity area, FAA developed controller display aids for staggered and converging approaches which are being installed and tested in St. Louis in FY 1990. This software change will allow controllers to safely sequence aircraft approaching to two separate runways as if they were flying in-trail to the runways, significantly reducing arrival variability. This will allow use of additional runways at many airports to lower weather minimums resulting in a capacity gain of nearly 40 percent. Operational implementation is planned for 30 airports in FY 1993.

Mr. COUGHLIN. Would you indicate for the record the amount of this activity's request that is related to your technical center?

[The information follows:]

We are requesting 11 positions, 11 FTE and $1,100,000 for the technical center.

FAA TECHNICAL CENTER

Mr. COUGHLIN. On page EX-14, the total costs associated with your technical center are estimated to be about $128 million in fiscal year 1991. What were the two or three most significant accomplishments of this facility during the past year?

Mr. POZESKY. Mr. Chairman, probably the most significant accomplishment was with the effort going on at the technical center to get ready for the implementation of the NAS plan, the refurbishment of the facilities and the building of the new facilities, the construction of some test facilities for fire test and aircraft safety were upgraded, and I think if my memory serves, there are about four or five additional efforts which I would like to submit as well for the record. Thank you.

[The information follows:]

In the Aviation Security area, the Thermal Neutron Activation (TNA) system, developed under the R,E&D program, was deployed for operational test and evaluation (OT&E) at New York Kennedy and Miami airports. Installation at London Gatwick and Dulles airports is scheduled for this year.

We also completed the installation of the Baltimore Washington International Airport (BWI) enhanced security project. The demonstration will provide information on the effectiveness, operational impact, and cost-benefit of enhanced airport security procedures and equipment.

In the Aircraft Safety area, FAA advisory circulars associated with corrosion detection prevention and control were updated as related to the agency aircraft fleet. Training programs to incorporate the newer technologies have been developed. Presentation of this information to FAA maintenance and inspection personnel is underway.

The Technical Center performed several real-time simulations which involve air traffic controllers performing tasks at a work space using displays and controls. Real-time simulations examined the feasibility of reducing the minimum separation required for dependent parallel approaches. The Technical Center conducted a real-time simulation evaluating independent triple parallel approaches at Dallas/Fort Worth (compared to dual parallel). Controllers, controller observers, and ATC management concluded that the triple simultaneous parallel ILS approach at Dallas/Fort Worth is acceptable, advisable, and safe.

ATLANTIC CITY AIRPORT

Mr. COUGHLIN. Have you ever considered turning your airport in Atlantic City over to the local public authority like you did with National and Dulles?

Mr. POZESKY. There is an effort going on right now in New Jersey to work with the community, to talk about the possibility of coming up with a local authority for that airport, and we're very actively engaged in that, and in fact, Senator Lautenberg from the Appropriations Committee on the Senate side is also involved in that process.

ADDITIONAL POSITIONS

Mr. COUGHLIN. On page 116, would you elaborate for the record why you need ten additional positions for this activity? Put that in the record.

[The information follows:]

The non-discretionary increase of 10 positions reflects a technical adjustment to align the Department's execution and formulation phases of the budget. No additional funds are required since these positions are currently allocated and support existing workload in the Development Direction program.

ENGINEERING AND DEVELOPMENT POSITIONS

Mr. COUGLIN. Would you update for the record the table on engineering and development positions that was included on page 506 of last year's hearing record?

[The information follows:]

Fiscal Year 1991 Engineering and Development Position Distribution by Location

	Appropriation		
	RE&D	OPS [1]	Total
Washington, DC:			
Advanced design and management control	86	16	102
NAS development	114	106	220
Aviation medicine	3		3
Environment and energy		29	29
Atlantic City, NJ: FAA Technical Center	385	11	396
Oklahoma City, OK: Aeronautical Center	80		80
Total, currently authorized positions	668	162	830
Total filled as of March 31, 1990	624	144	768

[1] Development direction.

AIRPORTS PROGRAM POSITIONS

Mr. COUGHLIN. You are requesting 530 positions and $38.92 million for administration of your airports program. On page 124, you are requesting an increase of 9 positions, 4 of which are for airport capacity. Last year, we directed that 26 of your 40 new positions should be assigned to work on airport capacity enhancements. Where do you stand with respect to filling these positions?

Mr. GRIGGS. Of the 26 from last year, we've hired 11 in capacity; we've hired 3 in airport certification; we have hired a total of 14. As money becomes available, we will hire them. But of the 9 this year, 4 are for capacity and 5 are for environmental, for an increased ability to promote airport development and capacity enhancements.

Mr. COUGHLIN. You refer to significant increases in workload in the capacity and environmental areas, but you don't provide any workload data to support this statement. Please provide some specific data for the record.

[The information follows:]

WORKLOAD DATA TO SUPPORT FISCAL YEAR 1991 ENVIRONMENTAL AND CAPACITY POSITION INCREASES

Recent staffing standards submissions project direct regional environmental workloads covering reviews and related matters to increase from 8,300 hours of effort in fiscal year 1989 to 31,800 hours in fiscal year 1991.

Significant workload increases are projected for regional capacity activities to accommodate the planning and projected construciton of new runways or extension of existing runways at 50 of the nation's top 100 airports dealing with capacity problems. Master and planning grant activities which involve capacity considerations are expected according to our staffing standards to increase from 20,400 direct hours of effort in fiscal year 1989 to over 30,000 hours of effort in fiscal year 1991.

PART 150

Mr. COUGHLIN. What is the status of your revisions to Part 150?

[The information follows:]

Secretary Skinner transmitted a report on the Part 150 Airport Noise Compatibility Planning Program to the Congress on May 1, 1990. This report is based on a study to determine whether expedited and simplified procedures which meet the objectives of the Aviation Safety and Noise Abatement Act of 1979 can be developed to include special circumstances at certain airports. The report provides an affirmative answer and work has already begun on implementing its recommendations. Full consideration will be given to consultations already completed with airports, airport users, representatives of persons residing in areas surrounding airports, concerned Federal, State, and local officials, and other interested persons when preparing the necessary revisions to the Part 150 process.

SACRAMENTO AIRSPACE STUDY

Mr. COUGHLIN. Last year's conference report directed a study of Sacramento airspace management, including restructuring the airspace, relocating the Sacramento VORTAC and the feasibility of adding more navigational aids. What is the status and projected completion date for this study?

Mr. STOER. Mr. Coughlin, we're in the process of letting a contract to conduct that work right now.

Admiral BUSEY. And I might add, Mr. Coughlin, that the contract that we're going to let to study that will encompass airspace much beyond Sacramento. When we look at the airspace and the impacts thereon, we've got to look at very large pieces of airspace. That's why it's taken us some time to get started in this because we've got to see what the impacts are on orienting one specific piece of airspace on the total system.

AIRPORT CAPACITY STUDIES

Mr. COUGHLIN. The committee also provided increased fiscal year 1990 funding for airport capacity task force studies. Which airports have you studied during the past year and what recommendations have been made?

Mr. GRIGGS. Which airports have been studied? During the past year, we've looked at Boston, Washington-Dulles, Seattle, Orlando, Chicago, Nashville, Raleigh-Durham, Charlotte, Los Angeles, Cincinnati, Philadelphia, Pittsburgh and San Juan. So far as recommendations, these are ongoing studies and recommendations are only made at the conclusion of the task force.

Previous task forces have produced more than 400 recommendations, including new runways, runway extensions to cut delay time, technology which is new systems and equipment needed to improve airport capacity, and development of new connecting hub airports to reduce flight.

AIRPORTS PROGRAM POSITIONS

Mr. COUGHLIN. Would you update for the record the table on page 508 of last year's hearing record breaking down your positions by activity?

[The information follows:]

AIRPORTS PROGRAM POSITION BREAKDOWN BY ACTIVITY

A breakdown of the Airports Program positions by activity as shown in the justifications for fiscal year 1991 is as follows:

	Positions
Safety programs and engineering standards	245
Airport planning, capacity and grants programs	260
Program management and evaluation	25
Total	530

ENGINEERING AND SAFETY STANDARDS

Mr. COUGHLIN. Would you also insert in the record a summary of the engineering and safety standards promulgated during the past year?

[The information follows:]

The following is a list of new or updated engineering and safety standards and criteria that have been promulgated during the past year:

Sealcoats and bituminous surface treatments for runways, taxiways, and aprons.
Plant mix bituminous materials.
Geocomposite edge drains.
Computer programs for airport pavement design.
Coal-tar sealer/rejuvenators.
Polyethylene modified asphalt cement.
Drainage standards for airports.
Wind cones for use near runway ends.
Standards for taxiway guidance sign systems.
Standards for light base housings for use on concrete or asphalt pavements.
Standards for retroreflective markings for taxiways.
Guidelines for complying with FAR Part 139 regulations relating to airport emergency planning exercises.
Guidelines and procedures for airport inspectors in carrying out and enforcing safety regulations on certificated airports.
Standards for the location of waste disposal sites near airports.
Standardized airport firefighter training curriculum and video training aids.

Airport design configuration standards addressing the following:

Runway centerline separation distances to parallel runway, taxiway, and taxilane centerline.
Runway centerline separation distances to hold line and edge of aircraft parking area.
Taxilane centerline separation distances to fixed or movable object.
Runway protection zone length, widths.
Runway obstacle free zone (OFZ) width and length beyond each runway end.
Approach obstacle free zone width, length, and slope.
Runway safety area width and length beyond each runway end.
Runway object free area width and length beyond each runway end.
Taxiway safety area width.
Taxiway/taxilane object free area width.
Surface gradient and line-or-sight standards.
Guidance on runway and taxiway bridges.
Guidance on the effects and treatment of jet blast.
Guidance on on wind analysis.
Guidance on taxiway fillet design.
Aircraft data required for airport design.
Runway length requirements for airport design.

DIRECTION STAFF AND SUPPORT SERVICES

Mr. COUGHLIN. You are requesting 1180 positions and $130,961,000 for direction, staff and support services. Would you provide for the record a breakdown of your requested 1180 positions and also show how this number compares with the 946 position breakdown for fiscal year 1989 and the 1166 position breakdown for fiscal year 1990?

[The information follows:]

FEDERAL AVIATION ADMINISTRATION DIRECTION STAFF AND SUPPORTING SERVICES

[Positions]

	FY 89 col of FY 90	FY 90 col of FY 91	FY 91 col of FY 91
Direction Management	78	64	64
Communication Control	56	56	56
Accounting	345	345	345
Budget	80	80	80
Civil Rights	40	40	40
International Aviation	10	10	10
Legal	132	221	221
Management Systems	90	90	90
Data Systems	188	188	202
Public Affairs	31	31	31
Aviation Policy & Plans	12	12	12
Management Systems (Washington)	8	13	13
Legal (Washington)	[1]1	141	141
Subtotal	1,071	1,291	1,305
Undistributed A-76 Management Initiatives	(125)	(125)	(125)
Total	946	1,166	1,180

[1] Until Fiscal Year 1990, 97 Chief Counsel positions were in the Headquarters Administration appropriation. These positions were transferred to Direction Staff and Supporting Services effective 1 October 1989.

Mr. COUGHLIN. On page 125, why do you have almost 200 more FTEs than positions under this activity?

[The information follows:]

This activity has experienced significant growth in workload resulting from the FAA expanding workforce and the numerous modernization projects being undertaken. These factors have placed demands on this "support" activity that have not been matched with increased resources. One of the solutions has been a heavy reliance on other than full time permanent positions (OTFTP) which do not require an authorized position but do require FTEs.

Mr. COUGHLIN. On page 127, you show fiscal year 1990 FTEs at 1314, which is 313 FTEs above the level projected for this activity for fiscal year 1990 in last year's justification. What transfers have you made into this activity and from which activities were these personnel transferred?

Mr. STOER. Two explanations, Mr. Chairman. First of all, our last year's estimates in the Congressional justification were understated due to anticipatory reductions that OMB had contemplated. We wound up last year exceeding our agencywide FTE ceiling by about 1400. We've since come to terms with OMB on the overall FTE ceiling, and a lot of the FTEs were restored to this particular activity.

With respect to specific transfers, we have transferred approximately 80 legal counsel positions into this activity and there have been some other smaller adjustments into this activity from other activities such as the systems maintenance area for support work.

ENFORCEMENT CASELOAD

Mr. COUGHLIN. Would you update for the record your enforcement caseload for each of the past five years similar to the information contained on pages 511 through 513 of last year's hearing record?

[The information follows:]

Caseload Statistics for the Office of the Chief Counsel
Fiscal Years 1984 - 1990

Eastern Region

FISCAL YEAR	CASES RECEIVED	CASES INITIATED	CASES CLOSED
1984	321	371	703
1985	457	305	225
1986	584	400	267
1987	901	675	355
1988	1,299*	930*	344*
1989	1,405	866	427
1990	394**	94**	73**

* Calendar Year 1988
** Calendar Year 1990 to February 28, 1990

Great Lakes Region *

FISCAL YEAR	CASES RECEIVED	CASES INITIATED	CASES CLOSED
1984	559	510	666
1985	723	557	610
1986	741	497	670
1987	1,144	879	753
1988	1,364	1,209	997
1989	1,427	954	875
1990	585*	262*	238*

* As of March 20, 1990

Western-Pacific Region

FISCAL YEAR	CASES RECEIVED	CASES INITIATED	CASES CLOSED
1984	1,043	1,134	1,616
1985	1,018	896	651
1986	1,154	915	1,700
1987	1,749	1,485	1,527
1988	1,586	1,247	1,167
1989	1,770	1,587	1,344
1990	640*	442*	451*

* As of February 28, 1990

Central Region

FISCAL YEAR	CASES RECEIVED	CASES INITIATED *	CASES CLOSED
1984	297	278	271
1985	273	266	252
1986	497	477	381
1987	806	784	648
1988	658	640	658
1989	710	680	566
1990	262*	226*	241*

* As of March 21, 1990

Southwest Region

FISCAL YEAR	CASES RECEIVED	CASES INITIATED	CASES CLOSED
1984	541	429	755
1985	694	318*	702
1986	859	856	733
1987	1,345	1,243	803
1988	1,837	1,864	1,007
1989	2,082	1,821	688
1990	913**	863**	314**

* Cases initiated for the period 1/1/85 thru 9/30/85. Information is not available before 1/1/85.

** As of March 20, 1990.

New England Region

FISCAL YEAR	CASES RECEIVED	CASES INITIATED	CASES CLOSED
1984	121	102	123
1985	123	92	125
1986	208	151	160
1987	211	187	221
1988	229	165	187
1989	254	123	187
1990	101*	62*	60*

* As of March 21, 1990

Southern Region

FISCAL YEAR	CASES RECEIVED	CASES INITIATED	CASES CLOSED
1984	650	520 *	540 *
1985	1,050	785	908
1986	1,450	981	1,033
1987	1,557	1,185	1,418
1988	2,015	1,347	1,465
1989	2,533	2,417	1,427
1990	976**	639**	449**

* Estimated.
** As of March 22, 1990.

Northwest-Mountain Region

FISCAL YEAR	CASES RECEIVED	CASES INITIATED	CASES CLOSED
1984	423	494	569
1985	524	468	544
1986	621	529	599
1987	803	721	722
1988	813	502	735
1989	877	608	806
1990	416*	233*	304*

* As of February 28, 1990.

Alaska Region

FISCAL YEAR	CASES RECEIVED	CASES INITIATED *	CASES CLOSED
1984	142	*	152
1985	177	*	163
1986	268	93	207
1987	309	336	280
1988	284	352	189
1989	341	315	178
1990	193**	87**	63**

* Statistics not available.
** As of March 19, 1990.

CLAIMS

Mr. COUGHLIN. Last year, it was indicated that there were about 9090 claims pending against the Government amounting to about $19.6 billion. What is the current situation?

Mr. WALDEN. Currently, there are about 1050 claims pending, with a total demand of $22.5 billion.

Mr. COUGHLIN. Of the cases closed in 1989, how much did the Government have to pay?

Mr. WALDEN. In calendar year 1989, 87 cases were closed, either by settlement or by judgment. Each case may have involved one or more similar claims or complaints. The total amount demanded in those cases amounted to $933,282,968 and the total amount paid was $16,654,737.

Mr. COUGHLIN. That's the right direction.

Would you provide a listing of these cases for the record, including the amount sought and amount paid?

[The information follows:]

During CY 1989, a total of 87 cases were closed either by settlement or by judgment. Each case may have involved one or more claims or complaints. The total amount demanded in those cases was $933,282,968 and the total amount paid was $16,654,737.

Set forth below is a listing of those cases:

ACCIDENT DATE	ACCIDENT LOCATION	AMOUNT DEMANDED	AMOUNT PAID
9/12/75	Farmington, PA	$ 5,000,000	$ 0
2/11/76	Burlington, VT	950,000	0
11/10/78	Newry, ME	3,000,000	0
8/20/79	Smyrna, TN	24,954	0
10/27/79	San Ysidio, CA	9,000,000	0
3/27/80	Denver, CO	224,500,000	1,200,000
8/6/80	Bridgeport, TX	6,905,791	609,000
2/25/81	Washington, DC	100,000	0
4/23/81	Houston, TX	3,389,500	500,000
4/23/81	Alpena, MI	250,000	0
6/30/81	Muskegon, MI	15,005,000	0
9/24/81	Flagstage, AZ	2,107,794	0
10/3/81	Biscayne, FL	2,530,000	0
10/11/81	Gainesville, FL	6,000,000	250,000
12/28/81	Pullman, WA	235,000	214,300
1/14/82	Des Moines, IA	45,600	0
1/23/82	Boston, MA	220,000,000	7,406,234
1/23/82	Boston, MA	850,000	0
3/18/82	Richmond, IN	1,000,500	0
4/6/82	Tiller, OR	3,000,000	0

5/7/82	Santa Barbara, CA	11,308,400	2,812,977
6/16/82	Dunkirk, NY	69,000,000	0
7/12/82	Atlantic Ocean	61,250,000	15,000
9/13/82	N. Highlands, CA	11,060,378	1,643,378
10/21/82	Indian Hills, OH	15,050,000	0
11/14/82	Grand Bay, AL	2,500,000	0
1/2/83	Hancock, MD	1,967,243	0
1/2/83	Beanford, SC	1,000,000	0
7/22/83	Atlantic Ocean	5,000,000	0
8/7/83	El Paso, TX	7,500,000	0
8/21/83	Rapids City, SD	400,000	40,000
8/23/83	Anchorage, AK	4,246,515	0
10/5/83	Springfield, MO	10,000,000	0
12/6/83	Pontiac, MI	10,000,000	0
12/23/83	Anchorage, AK	8,249,515	0
1/15/84	Atalla, AL	5,000,000	0
2/03/84	Faffrey, NH	1,000,000	0
2/13/84	Baton Rouge, LA	2,000,000	5,000
2/22/84	Cordova, AK	1,901,844	450,000
6/23/84	Geneva, IL	550,000	25,000
6/24/84	Canton, GA	18,500,000	0
7/22/84	Sulphur Springs, FL	15,000,085	0
8/11/84	Memphis, TN	1,000,000	0
8/15/84	El Paso, TX	7,500,000	0
9/22/84	Colleyville, TX	16,000,000	86,500
10/7/84	Allegan, MI	21,075,561	0

11/1/84	Los Angeles, CA	875,000	120,000
11/10/84	McKinney, TX	369,000	0
11/18/84	Ft. Walton, FL	157,102	0
11/28/84	Seminole, OK	221,610	175,000
12/6/84	New Hope, NC	3,000,000	0
1/20/85	Carson, NM	8,000,000	0
2/23/85	Memphis, TN	1,000,000	0
7/05/85	Auburn, CA	2,200,000	0
8/24/85	Browntown, VA	1,000,000	0
10/4/85	Perry, GA	1,500,000	0
11/01/85	Bethel, AK	100,000	0
1/15/86	North Bend, OR	3,000,000	450,000
1/18/86	Ashwaubenon, WI	103,593	18,081
1/27/86	Ronkonkoma, NY	1,000,000	0
2/11/86	Dulles Airport, VA	25,000	0
2/26/86	Irvine, CA	6,000,000	10,000
3/26/86	Amora, IN	8,300	0
3/31/86	Boise, ID	22,017	0
4/21/86	Cadillac, MI	10,000,000	0
5/7/86	Billings, MT	500,000	0
6/24/86	Oklahoma City, OK	1,286,899	0
6/27/86	Stratford Airport, CT	500,000	0
7/1/86	Lynchburg, VA	14,000,000	350,000
7/11/86	Burbank, CA	10,000,000	0
7/13/86	W. Palm Beach, FL	6,000,000	0

7/16/86	Norton Shores, MI	20,000,000	0
10/13/86	Freemont, CA	10,000,000	0
10/31/86	Palmdale, CA	27,500	12,500
12/10/86	Windsor, MA	1,009,000	0
1/13/87	Dulles Airport, VA	151,143	17,143
1/25/87	National Airport, VA	579	579
2/1/87	Paducah, KY	5,000,000	0
2/27/87	Cahokia, IL	25,674	25,674
3/31/87	Ronkonkoma, KY	2,000,000	0
6/15/87	Oklahoma City, OK	3,000	0
8/11/87	Salt Lake City, UT	187,160	187,160
8/12/87	Ketchikan, AK	3,900,000	0
12/2/88	Pinson, AL	31,711	31,211
3/15/89	Jersey City, NJ	100,000	0
6/29/89	Ellenville, NY	5,025,000	0
7/3/89	Auburn, CA	5,000,000	0
	TOTALS	$933,282,968	$16,654,737

CORN AND OATS CONTRACTS

Mr. COUGHLIN. What is the total amount of funds your fiscal year 1991 budget includes for CORN contractor support and OATS contractor support?

[The information follows:]

The amount of funds included in the fiscal year 1991 budget for contractor support is $1.8 million for CORN and $167,000 for OATS.

Mr. COUGHLIN. Have you actually purchased any equipment under the OATS program?

[The information follows:]

Yes, so far this year we have purchased over 200 OATS workstations.

OTHER SERVICES

Mr. COUGHLIN. On page EX-20, please provide for the record a breakdown of your $29,796,000 request for other services.

[The information follows:]

Breakdown of DS&SS other services is as follows:

Contractual Studies	$850
Storage of Household Effects	252
Contractual Time Sharing	190
Data Processing Services	17,021
ADP Equipment Maintenance	4,484
Automation Support	1,500
Other Contractual Services	5,499
Total	29,796

NEW POSITIONS

Mr. COUGHLIN. On page 129, please provide an explanation of your request for 14 additional positions.

[The information follows:]

These positions are being requested in an attempt to try to align positions to actual program requirements. In the past, positions have been cut from the DS&SS activity in anticipation of savings caused by contracting out operations done by government employees. To a large extent, these anticipatory savings never materialized and, as a result, the actual employment level and the authorized position level have been out of balance. This request for 14 positions (no dollars or full time equivalents) is being requested in order to work toward eliminating this imbalance.

CONTROLLER TRAINING

Mr. COUGHLIN. You are requesting 1460 positions and $296,086,000 for human resources management. We have already discussed your training initiatives. Are you still operating two shifts per day at Oklahoma City?

Mr. MCLURE. Yes, we are.

Mr. COUGHLIN. What are your current controller class sizes?

Mr. MCLURE. The class size is 18. If you're referring to the monthly inputs, that's varied from 114 to 324 this year.

Mr. COUGHLIN. Why are training program costs increasing when you're enrolling fewer students and you're conducting 7 percent fewer weeks of training? Are you planning a new or additional controller training contract at Oklahoma City? If so, what is the status and what cost increases are you anticipating?

Mr. McLure. The only cost increases we have this year are labor, and we expect the costs to go up.

Mr. Coughlin. Is that competitive?

Mr. McLure. Yes.

Mr. Coughlin. Are you planning a new or additional controller contract at Oklahoma City?

Mr. McLure. No. Essentially we are reiterating the contract we have. Yes.

NAS PLAN SYSTEMS

Mr. Coughlin. On page 136, would you indicate for the record the 18 NAS plan systems scheduled to be deployed in fiscal year 1991?

[The information follows:]

Eighteen NAS Plan systems scheduled to be deployed in fiscal year 1991 are:

Runway Visual Range (RVR) Equipment
Solid-State Air Traffic Control Beacon Decoders
Weather Message Switching Center—Replace (WMSC-R)
Advanced Automation System—Peripheral Adapter Module Replacement Item (AAS-PAMRI)
Digital Bright Radar Indicator Tower Equipment (DBRITE)
Integrated Communications Switching System (ICSS), Type 3
Automated Surface Observing System (ASOS)
Low Level Wind Shear Alert System (LLWSAS)—Network Expansion and Sensor Improvements
Automated Weather Observing System (AWOS)—Commercial
AWOS Data Acquisition System (ADAS)
Automated Radar Terminal System, Model II (ARTS-II) Interface with Airport Surveillance Radar, Model 9 (ASR-9)
Airport Surface Detection Equipment ASDE, Model 3
National Airspace Data Interchange Network, Model II (NADIN-II)
Television Microwave Link (TML)
Traffic Management System (TMS), Phase II
Meteorologist Weather Processor (MWP)
Flight Service Automation System (FSAS), Model 1 full capacity
Next Generation Weather Radar (NEXRAD)

CONTROLLER QUALIFICATION TESTING

Mr. Coughlin. Would you also update for the record the table on page 520 of last year's hearing record regarding controller initial qualification testing?

[The information follows:]

AIR TRAFFIC CONTROLLER INITIAL QUALIFICATION TRAINING

	Number of students who	
	Enrolled	Completed
Fiscal year:		
1976	793	768
1977	1,871	1,420
1978	1,772	1,176
1979	1,912	1,276
1980	1,179	654
1981	1,193	406
1982	5,643	3,416
1983	3,062	1,720
1984	1,888	1,044
1985	2,223	1,267
1986	[1] 1,970	1,222

AIR TRAFFIC CONTROLLER INITIAL QUALIFICATION TRAINING—Continued

	Number of students who	
	Enrolled	Completed
1987	2,663	1,569
1988	[2] 1,859	1,088
1989	2,988	1,294
1990	2,089	1,253
1991	2,484	1,494

[1] Includes the initial entrants only. Beginning in fiscal year 1986, students entering the initial qualification program enrolled in several successive courses before completing training. The number of training enrollments, therefore, are higher than numbers shown here.

[2] Reflects a reduction from planned level due to hiring of DOD early release air traffic controllers at the GS–9 level.

TRAINING COSTS

Mr. COUGHLIN. Would you indicate for the record the average cost per enrollment for each of the training program areas listed on page 520?

[The information follows:]

Fiscal year 1990 average cost per enrollment

Training program:	*Amount*
Air traffic	$6,300
Airway facilities	2,300
Aviation standards	5,200
Management/General	1,000
Airports/Logistics	800

OTHER OBJECTS

Mr. COUGHLIN. Would you also provide for the record a breakdown of your fiscal year 1990 and 1991 other objects costs for your centralized training activity, similar to that on page 521 of last year's hearing record? Please also list each instructional services contract, including the cost.

[The information follows:]

CENTRALIZED TRAINING OTHER OBJECTS

[In thousands of dollars]

	FY 1990	FY 1991
Training travel	50,680	50,852
Instructional Service Contracts	29,090	[1] 28,331
Out-of-agency training (contracts)	23,120	23,725
Other training services (dvlpmt/support)	19,750	19,727
CBI services and support	6,290	6,631
Miscellaneous other services	6,691	6,246
All other objects	3,190	1,422
Total	138,811	136,934

[1] See Instructional Services Contracts below.

INSTRUCTIONAL SERVICES CONTRACTS

[In thousands of dollars]

Academy air traffic training	17,850	17,202
Academy National Weather Service	670	694

INSTRUCTIONAL SERVICES CONTRACTS—Continued

[In thousands of dollars]

Academy airway facilities training	1,030	1,069
Academy aviation standards	2,720	2,815
Center for Management Development	2,930	3,031
Academy basic instructor training	305	316
Academy management/general	300	316
Executive school	95	96
Flight Plan OJT training	1,000	526
Survey action/organization development	190	196
All other management/general	2,000	2,070
Total	29,090	28,331

Mr. COUGHLIN. Would you provide similar information for your labor, personnel and human relations activity?

[The information follows:]

LABOR, PERSONNEL AND HUMAN RELATIONS OTHER OBJECTS

[In thousands of dollars]

	FY 1990	FY 1991
Travel	2,596	2,938
Contract services	6,309	7,744
Supplies	421	403
Equipment	655	515
All other objects	256	291
Total	10,237	11,891

ACADEMIC AND INDUSTRIAL PROGRAMS

Mr. COUGHLIN. On page 238, why are you proposing to reduce by $3.1 million your academic and industrial ties program that you told us last year had a benefit to cost ratio of 2.7 to 1?

Mr. MCLURE. The reduction really represents costs for a mid America resource program that we aren't planning to fund this year. That was money that was given to us by the Congress for that specific program.

We believe that we should be able to do more with academic institutions without incurring those kinds of costs, and we are encouraging the Congress to continue that.

EMPLOYEE COMPENSATION

Mr. COUGHLIN. On page 145, you are requested $64,997,939, an increase of $1,017,449 for payments to the Department of Labor for employee compensation. For the past two years, you indicated the number of injury-related claims were decreasing. When do you expect this to be reflected in reduced claims?

Mr. MCLURE. The injury related-claims are decreasing but as we all know, health costs and other costs related to that are going up dramatically. In addition, the cost of living increases for pay take that number up, too. So while we expect our injuries to continue to go down, we expect the costs to stay about where they are.

Mr. COUGHLIN. Last year, you indicated you had a pilot project to review all recipient files in two regions. What did you find and did you expand this review to other regions?

Mr. MCLURE. We completed the pilot project and found that what we found there couldn't really be generalized, it was just another hole. And so we don't intend to do that in the rest of the system.

Mr. COUGHLIN. Were you able to save any money by doing it?

Mr. MCLURE. Not really.

Mr. COUGHLIN. Would you insert in the record the number of personnel your budget assumes will be receiving payments under this program in fiscal years 1990 and 1991?

[The information follows:]

Approximately 2,900 and 2,925 employees will receive OWCP compensation payments in FY 1990 and FY 1991 respectively.

RANDOM DRUG TESTING

Mr. COUGHLIN. What is the total annual cost of your random drug testing program and how many tests do you conduct a year?

[The information follows:]

In FY 1991 the annual cost is estimated at $7.5 million, and we anticipate testing over 15,000 employees.

RESTORATION OF POSITIONS

Mr. COUGHLIN. On page 145, you refer to a restoration of 62 positions. When were these positions originally provided and why are they required at this time?

Mr. MCLURE. As I understand it, the 62 positions are a technical adjustment to align us with the Department of Transportation.

Mr. STOER. That's associated with the same adjustment that we had in the DS&S area where we had in the 1987 time frame over 300 positions withdrawn based on anticipatory actions that did not materialize. The incumbent individuals—the work is still being done, the individuals are still on the roles and these are technical adjustments to restore legitimately the positions that are currently encumbered.

HEADQUARTERS ADMINISTRATION

Mr. COUGHLIN. You are requesting $31,838,000 and 400 positions for headquarters administration. On page 150, you are requesting an increase of five positions and $100,000 for your offices of budget and accounting. According to the information provided last year, your budget office has 55 positions and your accounting office has 40 positions. Isn't it possible to absorb some of these activities within your existing staff?

Mr. STOER. Mr. Coughlin, currently both the accounting offices and budget offices are working sustained amounts of overtime that needs to be alleviated. The amount of transactions as we move toward the NAS plan and with a great deal of additional workload internal in terms of budget execution, the additional positions are needed to provide some relief.

Admiral Busey. These folks are really stroking it, Mr. Coughlin. With an organization the size that we are, with our annual budget, and my experience in the Department of the Navy, we're really lean and mean compared with some of my other experiences and we really need these positions to give these folks a break.

INTERNATIONAL AVIATION OFFICE

Mr. Coughlin. Last year, you had 90 positions assigned to your office of international aviation. What was the most significant accomplishment of this office during the past year?

Mr. McDaniel. The 90 positions that you refer to, Mr. Coughlin, are actually divided among several offices in the assistant administrator for policy, planning and international aviation. There are 21 positions in the office of international aviation, 56 positions in the office of policy plans, and 13 positions in the office of the assistant administrator himself.

Two accomplishments that I would cite that are primary developments. One is participation in the development of the national transportation policy, and the draft strategic plan for the Federal Aviation Administration associated with that, and the preparation of our reauthorization legislation.

On the international side, we completed an agreement with the Soviet Union which will facilitate traffic through/between the Soviet Far East and Alaska and the United States, and we've also progressed considerably on discussions on the use of satellite navigation services.

PUBLIC AFFAIRS OFFICE

Mr. Coughlin. Would you provide for the record some workload data for the office of public affairs?

[The information follows:]

PUBLIC AFFAIRS WORKLOAD

Background: FAA's workload has increased dramatically in the past several years in both the Washington headquarters office and in the nine regional and two center Public Affairs Offices. The reason for the increase (conservatively estimated as 50 percent over the past five years) is heightened public interest in aviation issues across the board--deregulation, safety and security, aging aircraft, air traffic controller and safety inspector staffing, and in general the ability of FAA and the industry to keep up with demands, now and in the future.

To help promote greater public understanding of aviation and to rebuild public confidence in air travel, FAA's Office of Public Affairs has taken an active and aggressive role in dealing with the news media and the various aviation publics. This has been achieved in part through an improved planning process that permits early identification of events with potential news impact and enables us to develop appropriate public affairs strategies. An example of this is the nationwide effort to promote the Host computer and ASR-9 radar systems, key milestones in the agency's long-term program to upgrade and modernize the National Airspace System.

Part of this outreach process also has been to identify and train a cadre of FAA officials to act as public spokesmen on a wide variety of issues. Tied to this program has been the development of improved delivery systems for FAA news--i.e. electronic press releases and a satellite-driven videoconferencing system.

In addition, a systematic, long-term effort to increase public awareness of FAA and aviation issues was made through work with schools and communities. Among the most significant accomplishments in this area has been the increase in the number of aviation education resource centers around the country to provide easier public access to FAA education material.

Finally, the Office of Public Affairs also provided major video production support for the Back to Basics safety education program for pilots.

Organization: The Office of the Assistant Administrator for Public Affairs provides advice and guidance on public affairs issues to the Administrator, Executive Directors and Associate Administrators. This office also provides speechwriting services, drafts public statements, arranges news conferences and briefings for the Administrator. It also handles public affairs planning for the entire FAA and coordinates the activities of the regional/center public affairs offices.

The Washington headquarters Office of Public Affairs has three divisions: Public and Employee Communications, Community and Consumer Liaison, and Civil Aviation Information Distribution.

Public and Employee Communications Division: This division receives and replies to news media queries from around the country. The division receives about 50 calls daily on the average, but that number can double or triple following major accidents or other newsworthy events. Some can be answered readily, but others require the perso~~n receiv~~ing the call to check around the agency to obtain the information. In addition, this office prepares and publishes two employee publications--a weekly newsletter and a monthly magazine, agency news releases and other informational written documents that are used to disseminate information about rulemaking, changes in agency policies and procedures, advisory circulars or any item of interest and importance to the public.

Community and Consumer Liaison Division: This unit annually answers between 48,000 and 50,000 telephone inquiries concerning all aspects of the agency, and processes an additional 20,000 letters from the general public and industry requesting technical publications or information. It administers the Headquarters' Freedom of Information (FOIA) program, processing some 800 FOIA requests and 60 appeals annually, at the latest count. The division also responded to 771 written consumer complaints and managed the FAA Consumer Hotline, a nationwide, toll-free service which processed 724 telephone calls pertaining to FAA services in 1988.

Civil Aviation Information Distribution Division: This division is responsible for coordination and production of audio-visual materials, publications, aviation education, the agency's history program and the FAA satellite television network. Audio-visual materials include videotapes and films on aviation safety, including pilot training materials. Videotapes also are produced as vehicles for the Administrator and other top agency executives to communicate policy matters to regional and field facilities. Recent example of this includes the videotaped message from the Administrator to the regions/centers and Flight Standards District Offices on the new policy on compliance and enforcement. Other audio visual materials are produced to support the education program and international aviation programs. Publications are designed to support the consumer and education functions of the agency.

The Aviation Education function carries out that program revitalized by the agency in accordance with Public Law 94-353, Section 21. One of its purposes is to infuse aviation content into existing curricula of elementary and secondary schools and provide aviation expertise and materials to those schools. The program has been expanded to include communities as well as schools and efforts are underway to launch a program whereby FAA personnel speak to service clubs and civic organizations throughout the country. The aviation education/awareness program is attempting to accomplish this objective by managing a network of volunteer regional coordinators and local facilitators selected from among FAA employees.

The agency historian's principal function is to preserve the FAA's institutional memory and thereby provide FAA managers with a clear perspective of the past as an aid in dealing with current and future problems. This is done by assisting in the preservation of agency records, maintaining a small repository of key historical documents, conducting an oral history program, and producing historical monographs and chronologies. Recently, for example, the history program published the fifth volume ("Troubled Passage," covering the years 1973-1977) in the FAA narrative history series, dating back to the Air Commerce Act of 1926, as well as a monograph on the crew complement issue.

The FAA Satellite Television Network originates and broadcasts video conferences on management and training, and other internal information by satellite to selected FAA facilities nationwide. It also originates and broadcasts news conferences, public statements, and significant events and programs to the general news media.

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EMPLOYMENT BREAKDOWN

Mr. COUGHLIN. Would you provide for the record a breakdown, by office, of your fiscal years 1990 and 1991 positions, your current employment and estimated end-of-year employment for fiscal years 1990 and 1991?

[The information follows:]

	FY 1990 EOY	FY 1991 EOY
Direction/Management	65	65
Communications Control	23	23
Accounting	40	41
Budget	56	57
Civil Rights	14	14
International Aviation	90	90
Management Systems	90	90
Public Affairs	32	32
Total	410	412

REIMBURSEMENTS

Mr. COUGHLIN. How much does your fiscal year 1991 budget include to reimburse RSPA for aviation statistical, financial and traffic information?

[The information follows:]

$500,000 is included in the FY 1991 budget to reimburse RSPA. This is the same amount that was included in the FY 1990 budget.

INFORMATION RESOURCES MANAGEMENT PLAN

Mr. COUGHLIN. Last year, it was indicated that the total request for your information resources management plan, excluding personnel costs, was 77.35 million. What is the total budget request for IRMP-related projects for fiscal year 1991?

[The information follows:]

The total estimated fiscal year 1991 IRMP-related costs excluding personnel costs is $176.9 million. The increases in FY 1991 costs over those identified for FY 1990 include significant increases in the ASAS, NASMAP, and CORN projects. Part of the increases also relate to improved accuracy in identification of IRM costs throughout the agency.

Coughlin. Would you provide for the record a listing of your IRMP projects, including the amounts being requested?

[The information follows:]

The following is a breakout IRMP projects and estimated dollar amounts required in FY 1991 to support these projects:

[Dollars in thousands]

NAS Management Office Automation Program	$18,670
FAA Management Information System	1,000
Aviation Safety Analysis System	50,102
Aircraft Management Information System	304
Instrument Approach Procedures Automation	5,666
Grants Management System	350
Airports Safety and Standards System	600

[Dollars in thousands]

Airport Development and Capacity Enhancement	784
Logistics Master Plan	651
Logistics Inventory System	1,350
System for Acquisition Management	264
Electronic Time & Attendance Management System	760
Merit Promotion Plan Automation	1,222
Electronically Generated & Transmitted SF-52's	546
Modular Application Testing, Examining, & Screening System	410
National Airspace Information Monitoring System	3,795
National Aviation Safety Data Center Program	2,920
Budget Information System	950
Computer Resource Nucleus Program (CORN)	45,000
Technical Center Automation Projects	4,422
Aggregation of over 100 smaller projects	37,134
Total	$176,900

Note: The dollar amounts shown above were developed in the early stages of formulating the FY 1991 budget and were not adjusted in the IRM Plan as changes occurred during successive reviews of the FY 1991 budget.

Coughlin. Would you also indicate the activities and subactivities under which these funds are being requested, including the amount under each?

[The information follows:]

The IRMP is a management planning process to provide overall review, direction, and management of FAA's information resources, regardless of the funding source. As such, the IRM Plan does not provide data relating specific budget activity/subactivity information to projects in the IRM Plan.

A-76 STUDIES

Mr. COUGHLIN. On page 153, to what extent do you believe your anticipated savings of $1.3 million and 200 FTEs are achievable?

Mr. GOLDMAN. Since we've already taken it from the budget, they obviously are achievable. But the problem that we're facing is they're tied to the A-76 program. We are looking at better than 1000 positions right now in comparison for the A-76 study. That's seven different projects that are going on.

We would expect that in the next two years, we will recoup those positions through that effort.

Mr. COUGHLIN. You say you seven A-76 studies going on?

Mr. GOLDMAN. Yes.

Mr. COUGHLIN. In what areas?

Mr. GOLDMAN. There are three of them looking at functions at the Depot down at Oklahoma City; there is one that looks at our fleet maintenance activity; there are two that look at computerized operations in the field, and ground maintenance in the field. And one small one on publications.

AIRCRAFT PURCHASE LOAN GUARANTEE PROGRAM

Mr. COUGHLIN. Turn to our aircraft purchase loan guarantee program. How many defaults have you had to date under this program and what is the total amount you have paid as a result of these defaults?

Mr. McDaniel. Through April of this year, Mr. Chairman, eleven airlines have defaulted on 22 guaranteed loans, and the FAA has paid $181.5 million in principal, interest, and administrative expenses.

Mr. Coughlin. How much has the Government recovered in these situations, the defaulted loans?

Mr. McDaniel. We have recovered $131.3 million, or almost 75 percent of that that was paid out.

Mr. Coughlin. What is your responsibility with respect to disposing of the aircraft when a loan is defaulted?

[The information follows:]

The FAA's primary responsibility with respect to the collateral is to dispose of it in a manner which maximizes recovery of costs the FAA incurs in the settlement of loans. The FAA has the option of selling the collateral or transferring the aircraft to a Government agency for its use. The collateral may be sold by the Federal Government, the loan trustee as agent for the Federal Government, or by an aircraft broker as agent for the Federal Government. When collateral is sold by the Federal Government or by the trustee as agent for the Federal Government, the following procedures are used to assure that the sale is accomplished in a commercially reasonable manner:

(1) Advertise the sale in general business and trade publications.
(2) Give legal notice of the sale of the defaulting carrier.
(3) Have an independent appraisal made of the collateral.
(4) Accept bids for a reasonble period of time.
(5) Negotiate with bidders to maximize the price received.

If the collateral is kept for Government use, we must give legal notice to the defaulting airline and other creditors and follow procedures of the General Services Administration for interagency transfer of surplus property.

BORROWING AUTHORITY

Mr. Coughlin. You currently have borrowing authority for fiscal year 1990 of $10 million. How much of this authority have you used to date?

Mr. McDaniel. $25,143.

Mr. Coughlin. Why do you feel you need an additional $57 million in borrowing authority for fiscal year 1991, particularly since your estimated contingent liability at the end of 1900 is only about $47 million?

Mr. McDaniel. We had estimated originally $57 million based upon a worst case scenario. Our current estimate is that the contingent liability is approximately $43 million and our estimate for the end of fiscal year 1991 is $33 million.

OUTSTANDING GUARANTEES

Mr. Coughlin. Would you provide for the record a listing of outstanding guarantees showing the company, amount, type of aircraft, creditor and interest rate?

[The information follows:]

GUARANTEED LOAN PROGRAM

[Status as of 3/31/90]

Airline	Loan No.	Date of loan	Guaranteed loan balance	Class A creditor/trustee	Interest rate	Aircraft collateral	No.
Midway Airlines	88	9-30-81	$4,341,600	Continental Illinois Bank & Trust Co..	Variable	Cash in escrow fund	......

GUARANTEED LOAN PROGRAM—Continued

[Status as of 3/31/90]

Airline	Loan No.	Date of loan	Guaranteed loan balance	Class A creditor/trustee	Interest rate	Aircraft collateral	No.
USAIR:							
Piedmont Airlines.	95	9-29-80	10,598,100	State of Washington	11.125%	B-737-200	3
PSA	78	9-30-80	23,203,500	U.S. Trust Co. NY	11.75%	DC-9-80	4
PSA	121	9-04-81	8,699,800	Bankers Trust	15.90%	DC-9-80	2
Total			46,843,000				

AVIATION INSURANCE REVOLVING FUND

Mr. COUGHLIN. Turning to the aviation insurance revolving fund, what is the present balance in the fund?

Mr. McDANIEL. $44.6 million.

Mr. COUGHLIN. Do you have any claims pending?

Mr. McDANIEL. No.

Mr. COUGHLIN. What is the contingent liability under this program?

[The information follows:]

The Government's contingent liability for Civil Reserve Airfleet aircraft under the Aviation Insurance Program is approximately $300.0 billion. The contingent liability for other insurance of other aircraft cannot be quantified.

JOINT INSURANCE

Mr. COUGHLIN. As I understand it, Title XIII provides authority for joint insurance. Have you done anything with regard to this issue?

Mr. McDANIEL. We have not. We haven't had occasion to look at joint insurance which would provide for in effect co-insurance between the Government and private insurers.

GRANTS FOR AIRPORTS

Mr. COUGHLIN. Turn to the grants-in-aid for airports program. How much of your $1.425 billion did you obligate during the first six months of fiscal year 1990?

Mr. GRIGGS. We allocated $833.9 million and we obligated $232.4 million, sir.

Mr. COUGHLIN. On page 2, you indicate that you recovered $30,754,000 in prior year obligations in fiscal year 1989. From what projects were these funds recovered and how are these recovered funds distributed?

[The information follows:]

These funds were recovered from closeout adjustments to hundreds of projects obligated in the past fiscal years. The recovered funds are used to satisfy overrun in prior year projects.

Mr. COUGHLIN. Have you had any recoveries to date during fiscal year 1990?

[The information follows:]

Recoveries are approximately $12.M thru March 31, 1990.

UNOBLIGATED CONTRACT AUTHORITY

Mr. COUGHLIN. You also indicate that at the end of fiscal year 1990, you will have an unobligated balance of $968,787,000 in contract authority. Will any of this contract authority lapse at the end of the current fiscal year?

[The information follows:]

Some of the prior carryover entitlement funds may lapse, but we will not know until the end of fiscal year 1990.

PENDING AIRPORT GRANT APPLICATIONS

Mr. COUGHLIN. You are requesting a $1.5 billion obligation ceiling. What dollar amount of applications do you have pending?

Mr. GRIGGS. We have over $7.2 billion pending. The breakout for our primary and commercial service is 920 applications, for a total amount of $5,524,000,000. For general aviation and reliever airports there are 1,380 applications for $1,759,900,000. The total is $7,284,700,000.

Mr. COUGHLIN. Would you provide a breakdown of your pending applications by airport category?

[The information follows:]

PENDING APPLICATIONS BY AIRPORT CATEGORY

[In millions of dollars]

	Number	Amount
Primary/Commercial Service	920	$5,524.8
General Aviation/Reliever	1,380	1,759.9
Total	2,300	7,284.7

PRIORITY LISTING

Mr. COUGHLIN. Would you indicate for the record the actions taken with regard to the airports identified on page 65 of House Report 101-183 accompanying the fiscal year 1990 Transportation Appropriations Bill?

[The information follows:]

Of the 15 primary-capacity airport projects listed, action was taken to provide funds for all but two locations. Those locations were Miami and Albuquerque. Neither location submitted a request for a project.

All but three of the 15 primary airport locations were provided funds. Those locations were Lewiston, ID, Trenton, NJ, and Chattanooga, TN.

Only two of the 13 reliever airports did not receive funding. They were Somerville, NJ and Teterboro, NJ.

The one commercial service airport was funded.

Of the 25 general aviation airport locations listed, funding was provided to 13.

There were five instrument landing systems (ILS) funded out of the 17 candidates identified.

INSTRUMENT LANDING SYSTEMS

Mr. COUGHLIN. In our fiscal year 1990 Conference Report, we directed you to allocate up to $12 million from the airport grant program for the purchase of lease of instrument landing systems and approach lighting at a number of airports. Have any funds been made available for this program? If so, how much and to whom?

Mr. GRIGGS. We are currently gathering the programming data for this from the regions. When the costs and priorities are established on a national basis, those airports that meet standards, we will in fact go ahead and spend the $12 million. The final input from the regional office should be made by the end of April. I'll be happy to provide it to you then, sir.

Mr. COUGHLIN. Would you please?

Mr. GRIGGS. Yes, sir.

[The information follows:]

In December 1989, FAA published a precision approach landing system policy which spelled out guidelines for providing ILS and MLS under both the Facilities and Equipment Program and the Airport Improvement Program. The policy was necessary to ensure the efficient and orderly transition of MLS over the next decade. The policy limits implementation of ILS to those locations with an immediate and critical requirement that cannot be delayed until MLS is deployed, e.g. new runways, capacity enhancement or and immediate and critical safety need. Each requirement for an ILS is also measured against a cost-benefit criterion to determine its payoff over the lifetime of the system.

We have asked our regional offices to collect data on all 16 sites named in the 1990 Transportation Appropriation Bill so we may determine whether the policy standards are met. When costs and priorities are established on a national basis, those airports which meet standards will be programmed in priority order up to the $12 million set-aside.

Preliminary review based on limited cost data indicates that few of the 16 sites will achieve a benefit-to-cost ratio of 1, which would normally preclude programming for them, unless the "immediate and critical requirement" measure can be met. Final data input from our regional offices is expected in May.

NEW OR REPLACEMENT AIRPORTS

Mr. COUGHLIN. Have you made any grants to start construction of new or replacement airports during the current year? If so, would you provide a listing of these airports for the record?

[The information follows:]

Airport Construction

Byron, California—Reliever.
Gonzales, Louisiana—Reliever.
Ennis, Montana—General aviation.

PRIMARY AIRPORTS FUNDING

Mr. COUGHLIN. On page 10, you indicate that since 1982 the primary airports have received 66.4 percent of your grant funds. How much of your requested fiscal year 1991 program will go to primary airports?

Mr. GRIGGS. Of the total for this year, $610 million in entitlements for enplaned passengers, $42 million for cargo, $140 million which is for noise projects, discretionary money of $95.8 million for capacity, safety and noise; the $100 million special set aside for capacity/safety/noise for a total of $987.8 million; approximately 65.8 percent of the total program will go to primary airports.

DISCRETIONARY GRANT ALLOCATIONS

Mr. COUGHLIN. How are your discretionary grant allocations made? For example, what criteria do you use, how do you determine the non-federal share, how do you ensure that your regions are providing uniform information, etc.?

Mr. GRIGGS. Basically, without being too involved, the applications of this are evaluated on a project-by-project basis. For example, the more involved or the more detailed the project, the more that it contributes to the airport capacity, normally the higher priority it will have. For example, an airport where you're going to involve a runway overlay and that kind of a thing would have a higher priority. At a GA airport where they have more than 100 based aircraft, they would have a priority. So that a GA airport or a reliever airport that was close to a hub airport would have a higher priority than the one that was out.

And then priority ranking factors insofar as the non-Federal share, that is by law under the AIP law, sir. And so basically it comes down to where it's a prioritization according to the project itself, and I'd be happy to provide a detailed list and the reg, if you'd like me to. But it's by priority, sir.

[The information follows:]

January 10, 1989

FEDERAL AVIATION ADMINISTRATION
OFFICE OF AIRPORT PLANNING AND PROGRAMMING

AIRPORT IMPROVEMENT PROGRAM CAPACITY PROJECT SELECTION CRITERIA

Background: Section 507(c) of the Airport and Airway Improvement Act of 1982 (AAIA), as amended, authorizes the Secretary to make grants to primary airports and their relievers from discretionary funds for the purpose of preserving and enhancing airport capacity. In selecting projects for these grants, consideration is to be given to their effect on overall national air transportation system capacity, project benefit and cost, and the financial commitment of the airport operator or other non-Federal funding sources to preserve or enhance airport capacity. Because the demand for these discretionary funds exceeds the amount available, the Federal Aviation Administration (FAA) is unable to fund all of those capacity projects for which airport sponsors wish to obtain grants.

The FAA has developed project selection criteria to help make decisions on the relative priority of competing capacity projects proposed during the fiscal year. Under this system, projects are favored which best preserve and enhance capacity in the national system of airports and whose sponsors have demonstrated the required commitment to capacity enhancement.

In examining airport capacity and congestion, the major problems occur in the busier locations and capacity development at these airports appears to offer the greatest opportunity for system relief. These criteria will not exclude any primary airport or reliever which can contribute to system efficiency and capacity, nor will the criteria result in only the largest airports receiving discretionary grant funds.

Other information, such as a sponsor's ability to fund projects without Federal aid, or how a sponsor uses entitlement funds, is considered in awarding discretionary grants and in determining the dollar amount of Federal participation.

Purpose of Criteria

The criteria, when uniformly applied to all proposed projects across the nation, ideally should allow FAA to rank-order these diverse projects according to their value in reducing delays and increasing capacity not only at the airport where the project is accomplished, but also according to their beneficial impact on airspace system delays and on delays and capacity at other airports in the national system.

FAA has a major initiative underway to develop computer modeling techniques to measure and analyze system impacts of airport development. As this initiative progresses, these techniques may be used, as applicable, in selecting optimum projects for enhancing and preserving capacity. Until that time, the methodology outlined in this paper will be used by FAA as a primary consideration in determining program funding under Section 507(c) of the AAIA.

Criteria Development Methodology

The AAIA requires the FAA to consider three factors:

1. Effect on the overall national air transportation system.
2. Project benefit and cost.
3. Financial commitment of the sponsor or other non-federal funding sources to capacity.

The methodology used in developing the criteria was to first examine the impact of the airport on the system, then look at the effect the project will have on the airport operation and finally apply guidelines to determine the commitment of the sponsor to preserve or enhance airport capacity. Weighting each of the first two factors and combining them yields a relative value of the project in terms of the legislative requirement. The commitment of the sponsor is the subject of a separate examination to determine whether the sponsor meets certain financial prerequisites. The development and use of each of the three factors is discussed in the following.

Factor 1. - Effect on National System

This factor is developed for each primary airport with significant current or potential capacity problems. It is calculated independent of any specific project under review at a particular airport and is based on airport activity and market characteristics for which information and data are available. Four parameters are chosen:

1. Delay
2. Aircraft operations
3. Non-stop connectors
4. Proportion of connecting passengers

Each of the four parameters are measured and values assigned the airport according to Tables I through IV. The values are totaled and, if applicable, bonus points are added if an airport is determined to be a "new hub" or a "commercial alternative airport". Each parameter and bonus point awards are discussed below.

Delay: This parameter is made up of both current aircraft delay in hours per year and projected delay in 10 years. Delay hours are a direct measure of capacity shortfalls at an airport, but taken alone do not measure impact of the airport on the national system. FAA collects and analyzes delay data annually and makes 10 year forecasts for all major airports. Both current and forecast delay are given separate scores in accordance with Table I.

Table I

AIRCRAFT DELAY IN HOURS/YEAR

Hours	Current Delay Points	Forecast Delay Points
10,000-19,999	1	1
20,000-29,999	2	2
30,000-39,999	3	3
40,000-49,999	4	4
50,000+	5	5

Airport Operations: This is a direct measure of how busy an airport is in terms of aircraft takeoffs and landings. It is a logical conclusion that the busier the airport, the greater impact the airport will have on the national system. Aircraft operations were chosen over passenger enplanements for two reasons. First, the FAA's initial focus for providing relief from capacity constraints is directed at airside facilities - runways, taxiways, and aprons - to accommodate greater number and frequency of landings and take offs, relatively independent of aircraft size. Passenger enplanements, although another available measure of airport "busy-ness", is not as direct a measure. Secondly, delay is measured in this criteria development methodology in terms of aircraft operations, not passenger delay. Points are given as follows:

Table II

ANNUAL AIRCRAFT OPERATIONS

OPS. (x 1000)	Points
0-199	1
200-299	2
300-399	3
400-499	4
500+	5

Non-Stop Connectors: The number of airports served non-stop by a given airport is another indicator of the sensitivity of the national airport system to delays or lack of capacity at the given airport. A period of severe delays at one airport connecting directly to fifty others would cause a ripple effect much greater in extent than at another airport with an equal number of operations, but connecting directly to only twenty others. Put another way, this parameter measures, to some extent, the hub characteristics of an airport. Each candidate airport is examined to determine the number of the busiest 60 airports in the country to which it has direct flights. This number could vary from fifty nine at a location such as Atlanta or Chicago O 'Hare to three at one of the smaller airports. Points are given as follows:

Table III

NON-STOP "60"

Connections	Points
5-9	1
10-19	2
20-29	3
30-49	4
50-59	5

Proportion of Connecting Passengers: Similar to the "Non-Stop Connectors" parameter, this parameter is an indicator of the hub characteristic of an airport, and thus its impact on other airports in the system. Data developed by the Research and Special Projects Administration were used to determine what percentage of total enplaned passengers at each airport were passengers connecting to another flight.

Table IV

CONNECTING PASSENGERS

Percent	Points
10-19	1
20-29	2
30-49	3
50-59	4
60+	5

Emerging Hubs: An airport which is not now considered to be a hub, but which is expected to become one, or is expected to significantly increase passenger connection operations, may receive up to 3 extra points added to the airport impact factor. These points may be added if there is a commitment or convincing evidence of an airline's intent to begin or expand a significant hub operation.

Commercial Alternative Airports: A commercial service airport located in a metropolitan area with other major congested airports, can and often does provide relief at those congested airports by giving commercial passengers an alternative arrival or departure point. To the extent that airport development at the secondary airport can entice commercial operations from the capacity-constrained airport, additional capacity is afforded the service area. This type of capacity enhancement is recognized in the criteria by raising the commercial alternative airport forecast delay hour score (Table I) to equal the forecast delay score of the major airport.

Compiling the Airport Impact Score: Each primary airport considered is examined and awarded points in accordance with the six factors discussed above, and the points totaled. This airport impact score is then used for that airport as part of the project score for each project at that airport during that fiscal year, since it is not anticipated that the impact score will change during any one year. FAA intends to update these scores annually. Although there is imprecision in forecasting, sampling errors and uncertainties of factor weighting, these scores give a good indication of relative effect of the airport on the system.

Reliever Airports Impact Scores: Reliever airports are awarded points based on the score of the congested primary airport which they relieve. The reliever scores are calculated by using a percentage of the primary airport score proportional to the amount of general aviation traffic at the primary, the theory being that the higher the general aviation traffic at the congested airport the greater the opportunity for siphoning it off to the reliever. The reliever airport scores will be rounded to the nearest whole number.

TABLE V

GENERAL AVIATION ANNUAL OPS AT THE PRIMARY AIRPORT	PERCENTAGE OF PRIMARY SCORE GIVEN THE RELIEVER AIRPORT
Greater than 90,000	80
70,000 - 90,000	70
50,000 - 69,999	60
30,000 - 49,999	50
Less than 30,000	40

Factor 2 - Project Benefit and Cost

The second half of the analysis for the priority system is dependent upon the type of work proposed and its benefit to airport and system capacity. This factor is similar to and is generally based upon the priority system used by FAA since 1984 to make funding decisions in the Airport Improvement Program. This system was announced in the Federal Register, March 28, 1984.

The basic philosophy in developing the capacity priorities at existing airports is to give precedence to projects closest to the runway threshold, that is, runway work would be higher priority than taxiways, taxiways higher than aprons. Land acquisition or other development work necessary for a runway, for example, would also receive the same priority as the runway construction itself. Addition of new facilities is given precedence over extensions or overlays. The highest priority for capacity enhancement would be given to new airports in congested metropolitan areas.

Table VI shows the points assigned to the type project deemed to contribute significantly to capacity enhancement or preservation. It should be noted that only airside work (runways, taxiways, aprons) on an airport will be considered under these criteria since these areas directly affect the movement of aircraft on the airport surface or in the terminal airspace and thus impact on the national system.

Table VI

AIRPORT PROJECT IMPACT FACTOR

Item	Activity	Points
New Airport	Construct	20
	Acquire	20
Runway	Construct New or Reconstruct	15
	Extend or Overlay	10
Taxiway	Construct New or Reconstruct	10
	Extend or Overlay	8
Apron	Construct New or Reconstruct	8
	Extend or Overlay	5
Other	Describe	1-10

Combining Airport and Project Scores: The final step in preparing a project priority is the addition of the two scores as developed in the foregoing process.

Factor 3 - Sponsor Commitment

In determining the extent to which the airport sponsor has demonstrated financial commitment to preserving and enhancing airport capacity, the FAA first examines the sponsor's use of grant funds to which the airport is entitled under Section 507(a) of the AAIA. If the sponsor is committing at least three years of current and future entitlements to the capacity project, the criteria is deemed met. In the case of large projects whose duration extends beyond three years, entitlements should be used over the entire construction/implementation period. Also, entitlements used on higher priority projects, i.e. safety or security projects, can be counted toward meeting this criteria.

Should the use of entitlements not meet these standards, FAA will review the past history of capital development funding at the airport, the future capital improvement plans and financing programs and make a determination whether sufficient commitment to preserving and enhancing capacity is demonstrated. Sponsors which cannot show this commitment will not be considered for funding of capacity projects from this special account.

FAA's Use of the Capacity Priority System: As with any priority system dealing with complex issues and relationships, a strict numerical ranking provides a good indication of value but may not necessarily produce the optimum project selection for available funding. This is particularly true of airport development projects which are subject to a number of factors which cannot routinely be taken into account in a standard system designed to assess hundreds of projects across the nation. Although airports share a great many commonalities, each is also unique in many respects - physical layout, demand patterns, operational restrictions, environmental constraints, community support, project timing, sponsor financial capability etc. These unique qualities will often have to be factored into project selection in conjunction with the priority system. The final FAA selection of projects to be funded from the special capacity fund is based not only on how the project scores in this system, but also on all of the other programming information available for making informed decisions.

SAFETY AND SECURITY GRANTS

Mr. COUGHLIN. You state that safety and security are foremost in determining the use of grant funds. Last year, on pages 539 to 541, you listed a number of pending applications for safety and security projects. Would you indicate for the record which, if any, of these applications were not funded and reasons why they weren't?

[The information follows:]

The following locations were not funded:

City, airport	Reason for not funding
Miami, International	Will be considered this year.
Pensacola, International	Entitlement used for other development. No discretionary available.
Detroit, Metro	Partially funded. Balance to be considered this year.
Laurel-Hattiesburg, Reg	Security program approved this year. Awaiting revised preapplication.

Mr. COUGHLIN. Would you provide for the record a listing of your pending applications for safety and security projects?

[The information follows:]

International Jacksonville Florida	1,184,000	Install security systems
International Miami Florida	1,500,000	Install security systems
Panama City-Bay County Panama City Florida	31,000	Acquire aircraft rescue and fire fighting equipment
Regional Pensacola Florida	90,000	Modify marking/lighting Part 139 standards
Sarasota-Bradenton Sarasota Florida	1,526,000	Acquire security equipment and rapid intervention vehicle
Regional Tallahassee Florida	121,000	Regroove runway
International Tampa Florida	2,295,000	Install security fencing and security system
Athens-Ben Epps Athens Georgia	45,000	Groove runway
Metropolitan Columbus Georgia	363,150	Install security improvements
Regional Macon Georgia	473,760	Install distance-to-go markers; acquire aircraft rescue and fire fighting vehicle
International Agana Guam	651,165	Install security system
Lihue Lihue Hawaii	176,250	Acquire aircraft rescue and fire fighting vehicle
Ryan Field Baton Rouge Louisiana	292,500	Acquire security equipment
Regional Lafayette Louisiana	244,260	Acquire security equipment

International New Orleans Louisiana	1,770,000	Rehabilitate aircraft rescue and fire fighting vehicle; acquire security system, Phase II; seal coat runways and taxiways
Regional Shreveport Louisiana	1,102,950	Install security system
International Baltimore Maryland	169,500	Install security access system, Phase II
Various Locations Michigan	150,300	Develop security improvement-implementation plan
Detroit City Detroit Michigan	3,500,000	Land; relocation assistance; hazard removal
Metro Detroit Michigan	2,285,921	Acquire security equipment; and install security system, Phase II
Municipal Lansing Michigan	359,024	Install security fencing
Pine Belt Regional Laurel-Hattiesburg Mississippi	328,968	Apply porous friction course
Municipal Lincoln Nebraska	405,000	Install security system
Eppley Airfield Omaha Nebraska	495,000	Install security system
Regional Farmington New Mexico	581,636	Acquire aircraft rescue and fire fighting vehicle; master plan update
Municipal Monticello New York	270,000	Acquire aircraft rescue and fire fighting vehicle
International Syracuse New York	262,500	Acquire aircraft rescue and fire fighting vehicle

International Greensboro North Carolina	765,000	Acquire aircraft rescue and fire fighting vehicles
Jetport Kinston North Carolina	90,000	Install security improvements
Raleigh-Durham Raleigh North Carolina	46,875	Construct road to aircraft rescue and fire fighting building
International Pittsburgh Pennsylvania	3,712,000	Construct aircraft rescue and fire fighting building
Regional Florence South Carolina	30,000	Install taxiway signs
McKellar Field Jackson Tennessee	99,000	Acquire aircraft rescue and fire fighting vehicle
International Memphis Tennessee	4,091,430	Install security improvements
Metropolitan Nashville Tennessee	363,750	Acquire aircraft rescue and fire fighting vehicle
Municipal Austin Texas	822,750	Acquire aircraft rescue and fire fighting vehicle and safety equipment; install security system
International Corpus Christi Texas	468,459	Install security fencing; construct road
Intercontinental Houston Texas	600,000	Acquire aircraft rescue and fire fighting vehicles
William Hobby Houston Texas	1,521,000	Install security system

Pending Safety and Security Applications

AIP Requests including Work Priority A
(Priority A Items are Underlined)

Airport City State	Federal Funds Requested	Work Description
International Huntsville Alabama	$ 381,600	Acquire security vehicle; install terminal closed circuit TV monitors
Cold Bay Cold Bay Alaska	328,125	Acquire aircraft rescue and fire fighting vehicle
Iliamna Iliamna Alaska	159,375	Acquire aircraft rescue and fire fighting vehicle
International Ketchikan Alaska	485,000	Acquire aircraft rescue and fire fighting vehicle
International San Jose California	265,947	Acquire aircraft rescue and fire fighting vehicle
Hartford Brainard Hartford Connecticut	130,500	Acquire aircraft rescue and fire fighting vehicle
International Windsor Locks Connecticut	750,000	Install security system
SW Regional Fort Myers Florida	717,000	Acquire aircraft rescue and fire fighting hot pit equipment; install security system

DISCRETIONARY GRANTS

Mr. COUGHLIN. Would you provide for the record a listing of the fiscal year 1989 discretionary grants in excess of $2 million, indicating the airport, amount and purpose of the grant?

[The information follows:]

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     PROGRAM: ARPB01
     RUN DATE: 04/17/90      RUN TIME: 13:01:20                              PAGE:   1
                              AIRPORT IMPROVEMENT PROGRAM
                                  DISCRETIONARY FUNDS

   FISCAL YEAR(S)         89
   FUNDING LIMIT GT       002000000

                                                                           TOTAL
         LOCATION/                  WORK                 DISCRETIONARY   FEDERAL
          AIRPORT                DESCRIPTION                PORTION       FUNDS

   ALASKA
   -------------------

   JUNEAU               CONSTRUCT TAXIWAYS; APRON AND   $2,198,722    $7,243,337
   JUNEAU               ACCESS ROAD; INSTALL TAXIWAY
   INTERNATIONAL        LIGHTING

                                  SUB TOTALS             $2,198,722    $7,243,337

   ARIZONA
   -------------------

   BULLHEAD CITY        CONSTRUCT NEW AIRPORT (PHASE    $2,500,000    $2,800,000
   BULLHEAD CITY/       II SITE PREPARATION); ACQUIRE
   LAUGHLIN             LAND FOR DEVELOPMENT AND
                        APPROACHES

   LAKE HAVASU CITY     LIGHT OBSTRUCTIONS; INSTALL     $3,000,000    $3,000,000
   LAKE HAVASU CITY     SECURITY FENCING; CONSTRUCT
                        ACCESS ROAD AND DRAINAGE;
                        INSTALL AND RELOCATE
                        UTILITIES

   PHOENIX              CONSTRUCT AND LIGHT APRON       $9,000,000   $12,178,729
   PHOENIX SKY HARBOR
   INTERNATIONAL

   PHOENIX              ACQUIRE LAND FOR NOISE          $3,000,000    $3,000,000
   PHOENIX SKY HARBOR   COMPATIBILITY; PROVIDE
   INTERNATIONAL        RELOCATION ASSISTANCE (NOISE
                        LAND)

                                  SUB TOTALS            $17,500,000   $20,978,729
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AIRPORT IMPROVEMENT PROGRAM
DISCRETIONARY FUNDS

FISCAL YEAR(S) 89
FUNDING LIMIT GT 002000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
ARKANSAS			
LITTLE ROCK ADAMS FIELD	STRENGTHEN RUNWAY AND TAXIWAYS; INSTALL RUNWAY AND TAXIWAY LIGHTING	$7,400,000	$7,400,000
NORTH LITTLE ROCK NORTH LITTLE ROCK MUNICIPAL	CONSTRUCT RUNWAY AND TAXIWAYS (PHASE I); INSTALL RUNWAY LIGHTING AND VISUAL APPROACH AID	$2,650,000	$2,650,000
	SUB TOTALS	$10,050,000	$10,050,000
CALIFORNIA			
BURBANK BURBANK-GLENDALE-PASADENA	SOUNDPROOF SCHOOL (BURBANK)	$2,500,000	$2,500,000
BURBANK BURBANK-GLENDALE-PASADENA	ACQUIRE LAND FOR DEVELOPMENT	$5,600,000	$5,600,000
LIVERMORE LIVERMORE MUNICIPAL	CONSTRUCT, EXTEND AND OVERLAY TAXIWAYS; EXPAND APRON; INSTALL RUNWAY AND TAXIWAY SIGNS; INSTALL VISUAL APPROACH AIDS; ACQUIRE LAND FOR APPROACHS; INSTALL FENCING	$2,268,000	$2,268,000
LOS ANGELES LOS ANGELES INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBLITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	$3,000,000	$3,000,000

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AIRPORT IMPROVEMENT PROGRAM
DISCRETIONARY FUNDS

FISCAL YEAR(S)   89
FUNDING LIMIT GT   002000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
SANTA ANA JOHN WAYNE/ORANGE COUNTY	ACQUIRE AIRCRAFT RESCUE AND FIRE FIGHTING VEHICLES; CONSTRUCT AND WIDEN TAXIWAYS; CONSTRUCT SERVICE ROAD; IMPROVE DRAINAGE (PHASE II)	$3,250,000	$3,250,000
VAN NUYS VAN NUYS	RELOCATE, RECONSTRUCT AND LIGHT TAXIWAY; INSTALL TAXIWAY SIGNS; RELOCATE SERVICE ROAD	$2,148,300	$2,148,300
	SUB TOTALS	$18,766,300	$18,766,300
COLORADO			
DENVER DENVER INTERNATIONAL (NEW)	CONSTRUCT RUNWAY AND TERMINAL AREA (SITE PREPARATION); CONSTRUCT TERMINAL BUILDING (DESIGN ONLY); ACQUIRE LAND FOR DEVELOPMENT; PROVIDE RELOCATION ASSISTANCE	$25,803,641	$60,000,000
DENVER FRONT RANGE	ACQUIRE LAND FOR DEVELOPMENT; PROVIDE RELOCATION ASSISTANCE	$2,636,893	$2,636,893
	SUB TOTALS	$28,440,534	$62,636,893
CONNECTICUT			
DANBURY DANBURY MUNICIPAL	REHABILITATE AND GROOVE RUNWAY; IMPROVE DRAINAGE	$3,615,378	$3,677,400

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PROGRAM: ARPB01
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                           AIRPORT IMPROVEMENT PROGRAM
                              DISCRETIONARY FUNDS

FISCAL YEAR(S)        89
FUNDING LIMIT GT      002000000

                                                                                TOTAL
     LOCATION/                          WORK                 DISCRETIONARY     FEDERAL
      AIRPORT                       DESCRIPTION                 PORTION         FUNDS

                                    SUB TOTALS               $3,615,378     $3,677,400

FLORIDA
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FORT LAUDERDALE       RECONSTRUCT, OVERLAY AND               $3,278,000     $3,278,000
FORT                  EXTEND RUNWAY AND TAXIWAYS
LAUDERDALE--HOLLYWOOD (PHASE I)
 INTERNATIONAL

FORT LAUDERDALE       CONSTRUCT NOISE BARRIER                $4,000,000     $4,000,000
FORT
LAUDERDALE--HOLLYWOOD
 INTERNATIONAL

JUPITER               CONSTRUCT NEW AIRPORT (PHASE           $3,680,000     $3,680,000
NORTH PALM BEACH      I); ACQUIRE LAND FOR
COUNTY (NEW           DEVELOPMENT

MIAMI                 OVERLAY AND GROOVE RUNWAY;             $2,162,000     $2,162,000
OPA LOCKA             RELOCATE RUNWAY LIGHTING;
                      REHABILITATE VAULT

ORLANDO               CONSTRUCT AND LIGHT APRON              $5,000,000     $5,273,000
ORLANDO               (PHASE I)
INTERNATIONAL

ORLANDO               RECONSTRUCT AND LIGHT RUNWAY           $4,690,000     $4,690,000
ORLANDO               AND TAXIWAYS; CONSTRUCT AND
INTERNATIONAL         LIGHT TAXIWAYS AND APRON
                      (PHASE III)

SARASOTA              REHABILITATE AND GROOVE                $2,400,000     $2,400,000
SARASOTA-BRADENTON    RUNWAY
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AIRPORT IMPROVEMENT PROGRAM
DISCRETIONARY FUNDS

FISCAL YEAR(S) 89
FUNDING LIMIT GT 002000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
TAMPA TAMPA INTERNATIONAL	CONSTRUCT, RECONSTRUCT, EXTEND AND LIGHT TAXIWAYS; EXPAND AND LIGHT APRON; CONSTRUCT SERVICE ROAD	$4,500,000	$8,918,500
WEST PALM BEACH PALM BEACH INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	$3,000,000	$3,000,000
WEST PALM BEACH PALM BEACH INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	$4,738,743	$6,113,000
	SUB TOTALS	$37,448,743	$43,514,500
GEORGIA			
ATLANTA FULTON COUNTY-BROWN FIELD	REMOVE OBSTRUCTIONS; ACQUIRE LAND FOR APPROACHES; PROVIDE RELOCATION ASSISTANCE	$3,255,639	$3,255,639
ATLANTA THE WILLIAM B HARTSFIELD-ATLANTA INTL	SOUNDPROOF RESIDENCES; ACQUIRE LAND FOR NOISE COMPATIBILITY	$8,000,000	$24,852,760
ATLANTA THE WILLIAM B HARTSFIELD-ATLANTA INTL	CONSTRUCT APRON; INSTALL TAXIWAY LIGHTING	$2,085,211	$2,085,211

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PROGRAM: ARPB01
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                        AIRPORT IMPROVEMENT PROGRAM
                           DISCRETIONARY FUNDS

FISCAL YEAR(S)        89
FUNDING LIMIT GT      002000000

     LOCATION/                                                      TOTAL
      AIRPORT                  WORK               DISCRETIONARY    FEDERAL
                            DESCRIPTION              PORTION        FUNDS

PEACHTREE CITY        ACQUIRE EXISTING AIRPORT      $2,126,666    $2,126,666
FALCON FIELD          (PHASE I); CONSTRUCT AND
                      LIGHT RUNWAY, TAXIWAY AND
                      APRON; CONSTRUCT DRAINAGE;
                      ACQUIRE LAND FOR DEVELOPMENT

                            SUB TOTALS             $15,467,516   $32,320,276

ILLINOIS
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ALTON                 CONDUCT MASTER PLAN UPDATE;   $2,964,720    $2,964,720
CIVIC MEMORIAL        REMOVE OBSTRUCTIONS; EXTEND
                      AND LIGHT RUNWAY AND TAXIWAY;
                      RELOCATE PUBLIC ROAD; ACQUIRE
                      LAND FOR APPROACHES

CHICAGO               REMOVE OBSTRUCTIONS; ACQUIRE  $7,000,000   $17,754,476
CHICAGO MIDWAY        AIRCRAFT RESCUE AND FIRE
                      FIGHTING VEHICLE;
                      REHABILITATE RUNWAY;
                      CONSTRUCT TAXIWAYS; RELOCATE
                      ACCESS ROAD

CHICAGO/WEST          CONSTRUCT AND LIGHT RUNWAYS, $10,000,000   $10,000,000
CHICAGO               TAXIWAYS AND APRON; RELOCATE
DU PAGE COUNTY        UTILITIES, PUBLIC ROAD AND
                      RAILROAD TRACK; ACQUIRE LAND
                      FOR DEVELOPMENT AND
                      APPROACHES

                            SUB TOTALS             $19,964,720   $30,719,196
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FISCAL YEAR(S) 87
FUNDING LIMIT GT 002000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
INDIANA			
FORT WAYNE FORT WAYNE MUNICIPAL/BAER FIELD	RECONSTRUCT RUNWAY; REHABILITATE RUNWAY LIGHTING; REPLACE WETLAND (ENVIRONMENTAL MITIGATION)	$3,101,095	$4,118,760
INDIANAPOLIS INDIANAPOLIS INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE	$3,200,000	$3,200,000
INDIANAPOLIS INDIANAPOLIS INTERNATIONAL	INSTALL INSTRUMENT LANDING SYSTEMS; ACQUIRE LAND FOR NAVAIDS	$3,324,000	$3,324,000
INDIANAPOLIS INDIANAPOLIS INTERNATIONAL	CONSTRUCT AND LIGHT RUNWAY AND TAXIWAYS (PHASE III)	$7,000,000	$7,000,000
TERRE HAUTE HULMAN REGIONAL	OVERLAY AND GROOVE RUNWAY; WIDEN AND OVERLAY TAXIWAY; INSTALL FENCING	$2,118,600	$2,118,600
	SUB TOTALS	$18,743,695	$19,761,360
KENTUCKY			
COVINGTON GREATER CINCINNATI INTERNATIONAL	INSTALL INSTRUMENT APPROACH AIDS	$2,700,000	$2,700,000
	SUB TOTALS	$2,700,000	$2,700,000

FUNDING LIMIT GT 002000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
LOUISIANA			
NEW ORLEANS NEW ORLEANS INTERNATIONAL/ MOISANT FIELD	REMOVE OBSTRUCTIONS; ACQUIRE LAND FOR NOISE COMPATIBILITY; PROVIDE RELOCATION ASSISTANCE (NOISE LAND)	$3,600,000	$3,600,000
	SUB TOTALS	$3,600,000	$3,600,000
MARYLAND			
BALTIMORE BALTIMORE-WASHINGTO INTERNATIONAL	IMPROVE SECURITY SYSTEM; REMOVE OBSTRUCTIONS; RECONSTRUCT AND EXTEND RUNWAY; CONSTRUCT TAXIWAYS AND ACCESS ROAD; ACQUIRE LAND FOR APPROACHES	$9,349,203	$9,444,370
	SUB TOTALS	$9,349,203	$9,444,370
MICHIGAN			
DETROIT DETROIT CITY	REMOVE OBSTRUCTIONS; ACQUIRE LAND FOR APPROACHES; PROVIDE RELOCATION ASSISTANCE	$2,467,800	$2,467,800
	SUB TOTALS	$2,467,800	$2,467,800
MISSOURI			
KANSAS CITY KANSAS CITY INTERNATIONAL	CONSTRUCT RUNWAY AND TAXIWAY (PHASE II)	$4,400,000	$4,400,000

FUNDING LIMIT GT 002000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
ST LOUIS LAMBERT-ST LOUIS INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY; SOUNDPROOF SCHOOLS (ST. LOUIS)	$4,000,000	$9,000,000
ST LOUIS LAMBERT-ST LOUIS INTERNATIONAL	OVERLAY RUNWAY; RECONSTRUCT TAXIWAY; EXPAND APRON; IMPROVE ACCESS ROAD	$3,750,000	$7,421,147
ST LOUIS LAMBERT-ST LOUIS INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY	$2,500,000	$2,500,000
ST LOUIS SPIRIT OF ST LOUIS	SEAL COAT TAXIWAY; INSTALL TAXIWAY LIGHTING; ACQUIRE LAND FOR APPROACHES	$2,949,300	$2,949,300
	SUB TOTALS	$17,599,300	$26,270,447
NEVADA			
LAS VEGAS MC CARRAN INTERNATIONAL	ACQUIRE LAND FOR NOISE COMPATIBILITY	$3,000,000	$3,000,000
LAS VEGAS MC CARRAN INTERNATIONAL	CONSTRUCT RUNWAY AND TAXIWAYS (SITE PREPARATION); CONSTRUCT AND EXTEND TAXIWAYS; RECONSTRUCT APRON; INSTALL TAXIWAY LIGHTING AND RUNWAY AND TAXIWAY SIGNS	$6,500,000	$13,035,836
LAS VEGAS MC CARRAN INTERNATIONAL	CONSTRUCT AND RECONSTRUCT RUNWAYS AND TAXIWAYS; CONSTRUCT, RECONSTRUCT AND EXPAND APRONS; INSTALL RUNWAY AND TAXIWAY LIGHTING; ACQUIRE LAND FOR DEVELOPMENT; RELOCATE PUBLIC ROAD; IMPROVE DRAINAGE (PHASE I)	$6,000,000	$6,000,000

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                          AIRPORT IMPROVEMENT PROGRAM
                             DISCRETIONARY FUNDS

FISCAL YEAR(S)        89
FUNDING LIMIT GT      002000000

                                                                           TOTAL
     LOCATION/                   WORK                     DISCRETIONARY    FEDERAL
      AIRPORT                 DESCRIPTION                   PORTION         FUNDS

LAS VEGAS             RECONSTRUCT, OVERLAY AND             $3,000,000     $3,000,000
NORTH LAS VEGAS AIR   EXTEND RUNWAY; INSTALL RUNWAY
TERMINAL              AND TAXIWAY LIGHTING;
                      CONSTRUCT SERVICE ROAD;
                      IMPROVE DRAINAGE

                                  SUB TOTALS              $18,500,000    $25,035,836

NEW HAMPSHIRE
------------------

KEENE                 RECONSTRUCT AND LIGHT RUNWAY;        $2,856,137     $2,856,137
DILLANT-HOPKINS       CONSTRUCT TAXIWAY; INSTALL
                      VISUAL APPROACH AIDS

                                  SUB TOTALS               $2,856,137     $2,856,137

NEW JERSEY
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NEWARK                GROOVE RUNWAY; REHABILITATE          $4,052,715     $4,052,715
NEWARK                RUNWAY; REPLACE RUNWAY
INTERNATIONAL         CENTERLINE AND TOUCH DOWN
                      ZONE LIGHTING

                                  SUB TOTALS               $4,052,715     $4,052,715

NEW YORK
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BATAVIA               WIDEN RUNWAY; IMPROVE                $2,241,000     $2,241,000
GENESEE COUNTY        DRAINAGE (DESIGN ONLY)
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AIRPORT IMPROVEMENT PROGRAM
DISCRETIONARY FUNDS

FISCAL YEAR(S) 89
FUNDING LIMIT GT 002000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
BINGHAMTON LINK FIELD-BROOME COUNTY	OVERLAY, EXTEND AND LIGHT RUNWAY (PHASE III); CONSTRUCT TAXIWAY	$4,900,000	$5,775,469
BUFFALO GREATER BUFFALO INTERNATIONAL	ACQUIRE LAND FOR APPROACHES	$6,181,619	$10,957,140
MASSENA RICHARDS FIELD	REMOVE OBSTRUCTIONS; OVERLAY RUNWAY; RELOCATE RUNWAY LIGHTS; RELOCATE SERVICE ROAD	$2,163,600	$2,163,600
NEW YORK JOHN F KENNEDY INTERNATIONAL	RELOCATE TAXIWAYS	$6,200,285	$11,216,487
NEWBURGH STEWART INTERNATIONAL	ACQUIRE AIRCRAFT RESCUE AND FIRE FIGHTING VEHICLE; EXPAND APRON; ACQUIRE SNOW REMOVAL EQUIPMENT	$3,237,018	$3,237,018
NIAGARA FALLS NIAGARA FALLS INTERNATIONAL	RECONSTRUCT AND LIGHT TAXIWAYS; INSTALL RUNWAY AND TAXIWAY SIGNS	$2,643,331	$2,643,331
	SUB TOTALS	$27,566,853	$38,234,045

OHIO

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
CLEVELAND CLEVELAND HOPKINS INTERNATIONAL	REHABILITATE RUNWAY AND TAXIWAYS AND LIGHTING	$6,260,000	$13,458,945

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AIRPORT IMPROVEMENT PROGRAM
DISCRETIONARY FUNDS

FISCAL YEAR(S) 89
FUNDING LIMIT GT 002000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
COLUMBUS PORT COLUMBUS INTERNATIONAL	INSTALL NOISE SUPPRESSION EQUIPMENT AND NOISE MONITORING SYSTEM; SOUNDPROOF RESIDENCES (PHASE I); SOUNDPROOF SCHOOLS (PHASE II) (COLUMBUS)	$2,200,000	$2,200,000
COLUMBUS PORT COLUMBUS INTERNATIONAL	WIDEN AND LIGHT TAXIWAYS; CONSTRUCT APRON; REHABILITATE APRON; IMPROVE TERMINAL BUILDING	$3,980,000	$6,259,477
COLUMBUS RICKENBACKER	SOUNDPROOF SCHOOLS (GROVEPORT)	$3,000,000	$3,000,000
WILLOUGHBY LOST NATION	REMOVE OBSTRUCTIONS; REHABILITATE RUNWAY; CONSTRUCT TAXIWAYS, APRON AND ACCESS ROAD	$2,188,000	$2,188,000
	SUB TOTALS	$17,628,000	$27,106,422

PENNSYLVANIA

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
PHILADELPHIA PHILADELPHIA INTERNATIONAL	OVERLAY RUNWAY (PHASE I); EXTEND TAXIWAYS	$3,578,000	$10,257,000
PHILADELPHIA PHILADELPHIA INTERNATIONAL	CONSTRUCT TERMINAL ACCESS ROAD (PHASE II)	$3,505,000	$3,505,000
PITTSBURGH GREATER PITTSBURGH INTERNATIONAL	CONSTRUCT TAXIWAYS AND APRON (NEW MIDFIELD TERMINAL)	$10,000,000	$10,000,000

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   PROGRAM: ARPB01
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                               AIRPORT IMPROVEMENT PROGRAM
                                   DISCRETIONARY FUNDS

 FISCAL YEAR(S)       89
 FUNDING LIMIT GT     002000000

                                                                                  TOTAL
      LOCATION/                      WORK                      DISCRETIONARY    FEDERAL
       AIRPORT                    DESCRIPTION                     PORTION        FUNDS

                                  SUB TOTALS                    $17,083,000   $23,762,000

 SOUTH CAROLINA
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 COLUMBIA              REHABILITATE AND EXTEND                   $2,538,825    $2,603,996
 COLUMBIA              RUNWAY AND TAXIWAYS; INSTALL
 METROPOLITAN          RUNWAY SIGNS


                                  SUB TOTALS                     $2,538,825    $2,603,996

 TENNESSEE
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 KNOXVILLE             EXTEND AND LIGHT RUNWAY AND               $4,000,000    $4,000,000
 MC GHEE TYSON         TAXIWAY


 MEMPHIS               ACQUIRE LAND FOR NOISE                    $6,000,000   $14,197,146
 MEMPHIS               COMPATIBILITY
 INTERNATIONAL

 MEMPHIS               INSTALL INSTRUMENT APPROACH               $2,845,886    $2,845,886
 MEMPHIS               AID
 INTERNATIONAL

 NASHVILLE             INSTALL INSTRUMENT APPROACH               $4,353,190    $4,353,190
 NASHVILLE             AID
 METROPOLITAN

 NASHVILLE             CONSTRUCT RUNWAY (PHASE V)                $6,000,000    $6,000,000
 NASHVILLE
 METROPOLITAN

                                  SUB TOTALS                    $23,199,076   $31,396,222
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AIRPORT IMPROVEMENT PROGRAM
DISCRETIONARY FUNDS

FISCAL YEAR(S) 89
FUNDING LIMIT GT 002000000

LOCATION/ AIRPORT	WORK DESCRIPTION	DISCRETIONARY PORTION	TOTAL FEDERAL FUNDS
TEXAS			
AUSTIN NEW	CONDUCT MASTER PLAN STUDY; ACQUIRE LAND FOR DEVELOPMENT AND CONSTRUCT AIRPORT (PHASE II)	$10,000,000	$10,000,000
AUSTIN NEW	ACQUIRE LAND FOR DEVELOPMENT AND CONSTRUCT AIRPORT (PHASE III)	$5,000,000	$5,000,000
FORT WORTH FORT WORTH ALLIANCE (NEW)	ACQUIRE LAND FOR DEVELOPMENT AND APPROACHES; CONSTRUCT AIRPORT (PHASE II)	$21,000,000	$21,000,000
FORT WORTH FORT WORTH ALLIANCE (NEW)	ACQUIRE LAND FOR DEVELOPMENT AND APPROACHES; CONSTRUCT AIRPORT (PHASE III)	$3,000,000	$3,000,000
	SUB TOTALS	$39,000,000	$39,000,000
UTAH			
SALT LAKE CITY SALT LAKE CITY INTERNATIONAL	INSTALL INSTRUMENT APPROACH AID	$3,000,000	$3,000,000
	SUB TOTALS	$3,000,000	$3,000,000
VIRGIN ISLANDS			
CHARLOTTE AMALIE CYRIL E KING	RECONSTRUCT SECURITY GATE; CONSTRUCT APRONS; EXPAND APRON; CONSTRUCT ACCESS ROAD; IMPROVE DRAINAGE	$2,882,000	$2,882,000

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PROGRAM: ARPB01
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                          AIRPORT IMPROVEMENT PROGRAM
                              DISCRETIONARY FUNDS

FISCAL YEAR(S)        89
FUNDING LIMIT GT      002000000

                                                                          TOTAL
    LOCATION/                      WORK               DISCRETIONARY     FEDERAL
     AIRPORT                    DESCRIPTION               PORTION         FUNDS

                                 SUB TOTALS             $2,882,000    $2,882,000

WASHINGTON
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SEATTLE                ACQUIRE LAND FOR APPROACHES:     $3,517,317    $3,698,567
BOEING FIELD/KING      PROVIDE RELOCATION ASSISTANCE
COUNTY
INTERNATIONAL

SEATTLE                SOUNDPROOF RESIDENCES:           $2,200,000    $3,200,000
SEATTLE-TACOMA         ACQUIRE LAND FOR APPROACHES:
INTERNATIONAL          PROVIDE RELOCATION ASSISTANCE

SEATTLE                ACQUIRE LAND FOR NOISE           $3,750,500    $4,600,766
SEATTLE-TACOMA         COMPATIBILITY: PROVIDE
INTERNATIONAL          RELOCATION ASSISTANCE  NOISE
                       LAND)

SEATTLE                ACQUIRE LAND FOR NOISE           $5,280,000    $5,280,000
SEATTLE-TACOMA         COMPATIBILITY: PROVIDE
INTERNATIONAL          RELOCATION ASSISTANCE (NOISE
                       LAND)

                                 SUB TOTALS            $14,747,817   $16,779,333

WISCONSIN
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WAUKESHA               OVERLAY AND EXTEND RUNWAY AND    $2,250,000    $2,250,000
WAUKESHA COUNTY        TAXIWAY: INSTALL RUNWAY AND
                       TAXIWAY LIGHTING: INSTALL
                       TAXIWAY SIGNS AND VISUAL
                       APPROACH AIDS: ACQUIRE LAND
                       FOR APPROACH
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                          AIRPORT IMPROVEMENT PROGRAM
                              DISCRETIONARY FUNDS

FISCAL YEAR(S)       89
FUNDING LIMIT GT     002000000

    LOCATION/                                                           TOTAL
     AIRPORT                     WORK               DISCRETIONARY      FEDERAL
                              DESCRIPTION              PORTION          FUNDS

                              SUB TOTALS            $2,250,000     $2,250,000

                     GRAND TOTALS                 $383,216,334   $513,109,314
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AIRPORT GRANT OBLIGATIONS AND EXPENDITURES

Mr. COUGHLIN. Would you update for the record the table on pages 560 and 561 of last year's hearing record showing projects for which obligations were incurred more than two years ago and no cash expenditures have been made?

[The information follows:]

AIRPORT GRANTS MORE THAN 2 YEARS OLD WITH NO PAYMENTS

Location	Airport	Project No.	Federal funds
Ambler, Ak	Ambler	01-86	1,718,662
Dahl Creek, Ak	Dahl Creek	01-85	325,594
Kodiak, Ak	Kodiak	01-85	275,083
Murphy's Pullout, Ak	Seaplane Base	01-85	511,875
Pedro Bay, Ak	Pedro Bay	01-86	1,250,348
Onterio, Ca	International	05-81	1,168,382
Onterio, Ca	International	02-84	500,000
Onterio, Ca	International	04-86	3,014,223
Dade County, Fl	Metro System	M1-88	360,000
Lake Wales, Fl	Municipal	02-87	50,000
Leesburg, Fl	Municipal	05-87	65,000
Opa Locka, Fl	Opa Locka	07-87	219,400
Chicago, Il	Meigs	01-86	292,500
Chicago, Il	Midway	02-87	225,000
Tallulah, La	Regional	01-87	2,000,000
Bedford, Ma	Hanscom Field	05-87	557,357
Boston, Ma	International	09-83	500,000
Boston, Ma	International	16-85	1,065,115
Boston, Ma	International	19-86	650,800
Boston, Ma	International	20-86	6,642,578
Biddleford, Me	Municipal	05-87	557,357
Isleboro, Me	Isleboro	01-83	152,000
Lebanon, Mo	Lebanon	03-87	888,385
Troy, Mo	Municipal	01-87	73,260
Missoula, Mt	International	11-87	549,565
Hastings, Ne	Municipal	01-86	25,200
Atlantic City, NJ	Municipal	02-83	460,201
Camden, NJ	Heliport	01-86	45,000
Newark, NJ	International	20-86	310,666
Newark, NJ	International	24-87	1,000,000
Albany, NY	County	09-86	793,926
Albany, NY	County	10-87	96,300
Albany, NY	County	12-86	354,780
Albany, NY	County	19-87	355,500
Farmingdale, NY	Republic	05-87	257,562
Newburgh, NY	Stewart	02-86	900,000
New York, NY	JFK	04-86	310,667
New York, NY	LaGuardia	14-86	310,667
New York, NY	LaGuardia	21-87	1,000,000
New York, NY	St System Plan	S6-86	127,800
New York, NY	St System Plan	S7-87	225,000
Niagara, NY	International	05-87	271,759
Cleveland, Oh	Hopkins	16-87	279,098
Sidney, Oh	Municipal	18-87	1,974,427
Toledo, Oh	Express	07-87	734,554
Wapakoneta, Oh	Neil Armstrong	03-85	225,000
Oklahoma City, Ok	Will Rogers	03-83	500,000
Oklahoma City,Ok	Will Rogers	07-85	1,820,000
Mulineo, Or	Mulineo	03-87	1,000,000
Philadelphia, Pa	International	27-79	637,500
Philadelphia, Pa	Heliport	01-87	114,322
Pittsburgh, Pa	Heliport	02-87	49,500
Pottstown, Pa	Municipal	02-85	100,000

AIRPORT GRANTS MORE THAN 2 YEARS OLD WITH NO PAYMENTS—Continued

Location	Airport	Project No.	Federal funds
University Park, Pa	State College	04-85	42,255
Rhode Island	St System Plan	S2-85	17,631
Rapid City, SD	Regional	07-86	352,000
Moen, TT	International	03-85	148,500
El Paso, Tx	International	06-86	380,959
El Paso, Tx	International	07-87	1,292,250
El Paso, Tx	International	08-87	187,500
Sealy, Tx	Municipal	03-86	1,000,000
Ashland, Va	Hanover County	01-85	46,287
Montpelier, Vt	Edward F Knapp	01-86	70,000
Rutland, Vt	State	07-81	220,000
Vermont	St System Plan	S1-86	45,000
Logan, WV	County	02-75	150,000

Mr. COUGHLIN. Why is there such a long time period between the grant obligation and cash expenditures on some of these projects? For example, last year there was over $1.1 million obligated for Ontario, California in 1981, $2.8 million for Albany, New York in 1984 and 1985, nearly $7 million for Philadelphia in 1985 or earlier, and $900,000 for Logan, West Virginia in 1977 and 1978.

[The information follows:]

Many factors influence the sponsor's ability to proceed with a project and to subsequently request reimbursement for costs incurred. Delays are frequently caused by extensive time associated with condemnation of land needed for construction. In other cases, contractors selected for the construction are not able to accomplish the contract as anticipated because of construction delays or even possibly contractor/subcontractor bankruptcy. Sponsors also may delay proceeding with grants until other grants have been obtained so that construction covers more than one project. Sometimes sponsors are slow to request reimbursements, even though the construction has been accomplished. Each individual case is unique; but the FAA works closely with sponsors to resolve problems which delay project schedules.

APPLICATIONS FOR NEW AIRPORTS

Mr. COUGHLIN. Do you have any applications pending for new air carrier airports?

Mr. GRIGGS. No, we do not, sir.

Mr. COUGHLIN. Would you update the status of the new airport grant applications that were shown on page 562 of last year's hearing record?

[The information follows:]

Preapplications on file for new airports (other than commercial service)

[Amounts requested in millions of dollars]

Piedmont, Alabama	2.4
Council 2, Alaska	.3
Wasilla, Alaska	[1] 3.8
Calico Rock, Arkansas	1.2
Melbourne, Arkansas	[1] 3.3
Byron, California	8.1
Hollywood, Florida	39.9
Jupiter, Florida	[1] 12.7
Thomaston, Georgia	4.1
Burkesville, Kentucky	4.4
Georgetown, Kentucky	[1] 6.2
Gonzales, Louisiana	[1] 4.8
Ruston, Louisiana	[1] .1

Tallulah, Louisiana	[1] 1.5
Alma, Nebraska	1.0
Nebraska City, Nebraska	.7
Boulder City, Nevada	[1] .6
Harrisburg, Pennsylvania	.8
Garland, Texas	[1] .8
LaGrange, Texas	[1] 1.1
Monticello, Utah	2.1
Colville, Washington	.4
Spencer, West Virginia	6.0
Total	106.3

[1] Projects started, request partially funded.

AIRPORT CAPACITY SET-ASIDE

Mr. COUGHLIN. On page 12, would you provide a breakdown of a fiscal year 1991 $1.5 billion program level without a separate $100 million set-aside for capacity?

[The information follows:]

Regular appropriation limitation	$1,500,000,000
Primary airports	610,000,000
Cargo	45,000,000
Alaska supplemental	10,300,000
States	180,000,000
Subtotal entitlements	845,300,000
Noise	150,000,000
Relievers	150,000,000
Commercial service	37,500,000
System planning	7,500,000
Carryover entitlements	120,000,000
Remaining discretionary	47,425,000
Subtotal discretionary	654,700,000
Set-aside for Cap/Saf/Sec/Noise	0
Grand total	1,500,000,000

Assumes: $610M full formula entitlements; $120M carryover; no set-aside for cap/saf/sec/noise projects.
May not add due to internal rounding.
Pro AIP 91 12/20/89.

AIRPORT CLOSINGS

Mr. COUGHLIN. Current law requires the Department to approve any proposal to temporarily close an airport for non-aeronautical purposes. Have any such closures been requested? If so, would you list them for the record and indicate the disposition of each?

Mr. GRIGGS. We indicate that during calendar year 1989 that Burke Lakefront Airport in Cleveland requested to close the airport for an annual auto race and was allowed to do so. In Louisiana, St. Landry Parish Airport requested permission to close the entire airport for auto racing. It was denied initially. They came back and asked, and they were allowed to do it on a one-time basis. The only other airport that we have any record of is Cameron; in Cameron, Texas they requested to do it for a model aircraft meet, and it was turned down.

Mr. COUGHLIN. Mr. Chairman, that concludes this section of the justification questions.

Mr. LEHMAN. Thank you very much, Mr. Coughlin. We would like to adjourn now and then reconvene on Monday at 2:00 for the justifications on F&E and R&D. I understand that you're not going to be here, Admiral, but you'll have the necessary people on board for us.

I just want to compliment your staff, and especially you, for the kind of testimony you've provided us today. It was first class. You must have had a lot of practice.

Mr. COUGHLIN. Mr. Chairman, let me second that as well. It's been fine testimony and we appreciate the work you've done and your staff has done. It's been one of the better experiences we've had with the FAA.

Mr. LEHMAN. It was good, but it wasn't easy.

MONDAY, APRIL 23, 1990.

F&E APPROPRIATION INCREASE

Mr. LEHMAN. Here we go again. This afternoon, the Subcommittee will continue receiving testimony on the fiscal year 1991 budget request of the Federal Aviation Administration. Today we will complete the FAA's budget justifications. The appropriations accounts to be covered today are Facilities and Equipment and Research and Development. We welcome back today a number of senior FAA officials responsible for those accounts.

Since we received an opening statement from Administrator Busey last week, an additional statement is not necessary. We will instead move right into the questions.

Mr. LEHMAN. You are requesting $2.5 billion for facilities and equipment in fiscal year 1991, which represents an increase of 43 percent over last year. Would you explain why such a large increase is required? How much is due to continuation of the NAS plan, and how much is due to new or continuing non-NAS Plan projects?

Mr. WHITTINGTON. Mr. Chairman, the increase in the fiscal year 1991 F&E request is primarily due to the Advanced Automation System production contract, estimated at $553 million, construction and acquisition for the new Denver Airport, the Los Angeles Basin Facility and tower replacement projects.

Of course, we will also have continued procurement of radar surveillance systems. About 55 percent of the fiscal year 1991 request is due to the continuation of the NAS Plan. The other 45 percent is due to new or continuing non-NAS programs.

MAJOR PROGRAM INCREASES

Mr. LEHMAN. For the record, please provide a list of F&E projects which show a requested fiscal year 1991 budget increase of 20 percent or more, and their associated funding for fiscal years 1990 and 1991.

[The information follows:]

FY 1991 F&E PROJECTS SHOWING 20% OR MORE INCREASE OVER FY 1990 ($ IN THOUSANDS)

PROJECT TITLE	FY 1990 APPROPRIATED	FY 1991 CONGRESSIONAL REQUEST	% INCREASE FY 1991	DOLLAR INCREASE FY 1991
LONG RANGE RADAR (LRR) PROGRAM	39,048.0	75,200.0	93	36,152.0
RADAR MICROWAVE LINK (RML) SYSTEM	15,000.0	21,000.0	40	6,000.0
PROVIDE NEXT GENERATION WEATHER RADAR (NEXRAD)	5,718.7	24,736.0	333	19,017.3
IMPROVE AIR TRAFFIC CONTROL EN ROUTE RADAR FACILITIES	4,900.5	14,908.6	204	10,008.1
PROVIDE ADVANCED AUTOMATION SYSTEM (AAS)	365,000.0	556,300.0	52	191,300.0
AERONAUTICAL DATA LINK	6,695.5	10,000.0	49	3,304.5
AIR TRAFFIC CONTROL CENTER IMPROVEMENT/PLANT MODERNIZATION	37,415.9	46,194.0	23	8,778.1
PROVIDE MODE S	24,615.8	37,000.0	50	12,384.2
ESTABLISH/IMPROVE/UPGRADE AIRPORT SURVEILLANCE RADAR (ASR)	9,846.3	47,372.0	381	37,525.7
LOS ANGELES BASIN FACILITIES TRACON	18,904.9	76,100.0	303	57,195.1
PROVIDE MODE C INTRUDER (MCI)	14,267.3	46,000.0	222	31,732.7
TERMINAL SOFTWARE DEVELOPMENT SUPPORT	2,953.9	[illegible],600.0	157	4,646.1
REPLACE TERMINAL AIR TRAFFIC CONTROL FACILITIES	18,511.0	70,500.0	281	51,989.0
MODERNIZE ATCT/TRACON	7,111.0	16,657.0	134	9,546.0
INTERIM SUPPORT PLAN (ISP)	71,878.0	99,000.0	38	27,122.0
FAA SUPPORT OF NEW DENVER AIRPORT ESTABLISHMENT	39,385.2	60,000.0	52	20,614.8
TOWER COMMUNICATIONS SYSTEM (TCS)	1,969.3	23,000.0	1,068	21,030.7
RADIO CONTROL EQUIPMENT (RCE)	9,846.3	16,800.0	71	6,953.7
PROVIDE FLIGHT SERVICE STATION (FSS) MODERNIZATION	11,000.0	47,800.0	335	36,800.0
IMPROVE FLIGHT SERVICE FACILITIES	1,132.3	1,529.0	35	396.7
PROVIDE DIRECT USER ACCESS TERMINAL SYSTEM (DUATS)	8,861.7	15,000.0	69	6,138.3
VORTAC PROGRAM	10,584.8	29,441.0	178	18,856.2
CAT II/III MICROWAVE LANDING SYSTEM AND EVALUATION PROGRAM	11,815.6	35,000.0	196	23,184.4
PROVIDE APPROACH LIGHTING SYSTEM IMPROVEMENT PROGRAM	4,726.2	12,500.0	164	7,773.8
PROVIDE AUTOMATED SURFACE OBSERVING SYSTEM (ASOS)	10,392.8	30,100.0	190	19,707.2
ESTABLISH/EXPAND VISUAL NAVAIDS	7,384.7	15,989.0	117	8,604.3
ESTABLISH INSTRUMENT LANDING SYSTEM (ILS) CAT I	9,166.9	16,700.0	82	7,533.1
REPLACE INSTRUMENT LANDING SYSTEM (ILS)	13,750.4	25,000.0	82	11,249.6
ESTABLISH/MODERNIZE RUNWAY VISUAL RANGE (RVR)	4,381.6	5,776.0	32	1,394.4
MODERNIZE AND IMPROVE FAA BUILDINGS AND EQUIPMENT	19,692.6	24,366.8	24	4,674.2
FUEL STORAGE TANK REPLACEMENT AND MONITORING	5,907.8	10,000.0	69	4,092.2
AUTOMATED DATA PROCESSING (ADP) FACILITIES MANAGEMENT	8,861.7	25,000.0	182	16,138.3
NAS MANGEMENT AUTOMATION PROGRAM	9,846.3	14,200.0	44	4,353.7
PROVIDE MAINTENANCE CONTROL CENTERS (MCC'S)	4,184.7	5,200.0	24	1,015.3
EMPLOYEE SAFETY FOR AIRPORT TRAFFIC CONTROL TOWERS (ATCT'S	5,415.5	6,500.0	20	1,084.5
HUMAN RESOURCE MANAGEMENT PLAN FOR NAS TRANSITION/IMPLMENT	984.6	1,500.0	52	515.4
INDEPENDENT OPERTIONAL TEST AND EVALUATION SUPPORT IOT&E	1,440.0	4,000.0	178	2,560.0
HAZARDOUS MATERIALS MANAGEMENT	6,892.4	15,000.0	118	8,107.6
RENOVATION OF AIRCRAFT AND AIRMEN REGISTRY REPORTING SYS	3,938.5	10,000.0	154	6,061.5
CONTRACT SUPPORT SERVICES	1,969.3	4,600.0	134	2,630.7
NAS MODERNIZATION OF SYSTEM SUPPORT LABORATORY	3,052.4	4,700.0	54	1,647.6
PERSONNEL AND RELATED EXPENSES	75,059.0	124,898.0	66	49,839.0

NEW F&E PROJECTS

Mr. LEHMAN. Please provide a list of all projects in fiscal year 1991 for which no funds were provided in fiscal year 1990, their associated funding level, and justification page number. For each one, please describe why the activity is needed.

[The information follows:]

FY 1991 F&E PROJECTS
THAT HAD NO FY 1990 FUNDS

PROJECT TITLE	FY 1991 CONGRESSIONAL REQUEST	PAGE NUMBER	JUSTIFICATION FOR ACTIVITY
AUTOMATIC DEPENDENT SURVEILLANCE (ADS)	6,745.0	F&E-30	Provides two-way communications with oceanic controllers and aircraft. Provides real-time monitoring of aircraft movement to reduce/eliminate aircraft deviations and unauthorized use of prohibited airspace.
ESTABLISH REMOTE COMMUNICATION FACILITIES (RCF'S)	3,000.0	F&E-42	Establish new sites for additional operating positions and airspace resectorizations to keep the National Airspace System safe, efficient and minimize air traffic delays.
EXPAND/RELOCATE REMOTE COMMUNICATION FACILITIES (RCF'S	3,000.0	F&E-43	Corrects site specific problems/deficiencies by establishing addition RCF channels and improving ARTCC sectorization to keep the National Airspace System facilities efficent and up-to-date.
SATELLITE COMMUNICATIONS CIRCUIT BACK-UP	3,600.0	F&E-44	Substantially improves critical air-to-ground communications reliability and provides design, development and implementation to back-up existing communications circuit.
ALASKAN SATELLITE PROGRAM	12,000.0	F&E-45	Provides redundant critical routes to substantially improve NAS communications relabilitiy.
AIRPORT SURFACE DETECTION EQUIPMENT (ASDE)	6,000.0	F&E-54	Provides tower modifications and backup electrical service for the airport surface detection equipment to increase aircraft movement safety on airports and capacity due to expedited traffic flow.
NEW AUSTIN AIRPORT	850.0	F&E-56	The new Austin Airport will reduce airspace congestion caused by military and commercial air taffic, reduce delays, and enhance air traffic safety.
TOWER INTEGRATION	1,650.0	F&E-64	Provides a smooth transition of NAS Plan projects into FAA's air traffic control towers, minimizing disruption with the operating system.
REPLACEMENT OF EMERGENCY TRANSCEIVERS	5,000.0	F&E-69	Provides the necessary upgrade to maintain backup emergency communication for the ATCT's and TRACON's while reducing maintenance requirements and substantially decreasing radio interference problems.
ESTABLISH TRACON FACILITY CHICAGO O'HARE	1,500.0	F&E-71	Relocation reduces delays and enhances safety in the Great Lakes Area through improved airspace utilization and increased capacity.
WEATHER MESSAGE SWITCHING CENTER REPLACEMENT (WMSCR)	5,000.0	F&E-76	Allows the the design, development, installation, and implementation of this program to permit the closing of the National Communications Center NATCOM facility which is approaching obsolescence.

FY 1991 F&E PROJECTS
THAT HAD NO FY 1990 FUNDS

PROJECT TITLE	FY 1991 CONGRESSIONAL REQUEST	PAGE NUMBER	JUSTIFICATION FOR ACTIVITY
PROVIDE AUTOMATED SURFACE OBSERVING SYSTEM - FSS	6,472.0	F&E-77	Allows continued capability for instrument flight rules (IFR's) operations and the improved continuous observation capability at a significantly reduced cost.
LORAN C MONITOR SYSTEM ENHANCEMENTS	1,000.0	F&E-81	First increment to enhance aviation signal monitors and relocate monitors to optimize the navigation system.
GLOBAL POSITIONING SYSTEM (GPS) MONITORS	800.0	F&E-82	The integrity monitor system will allow GPS satellite signals as an important supplemental system for civil aviation. GPS will provide significant navigation benefits to civil aviation users.
ESTABLISH/REPLACE NONDIRECTIONAL RADIO BEACON (NDB)	2,615.0	F&E-83	Project required to meet operational requirements and to keep the NAS facilities efficent and up-to-date. The project alleviates the logistics/maintenance support problems and improves operational capabilities.
AUTOMATED DOCUMENTATION DEVELOPMENT & MAINTENANCE (ADDM)	1,900.0	F&E-107	Provides current information on documentation available to all FAA users in an on-line database with rapid retrieval, change control process, and a mechanism to accomodate the changing NAS. FAA system compatibility and payback will be realized within the first year of full implementation.
DYNAMIC OCEAN TRACK SYSTEM INTEGRATION (DOTS)	285.0	F&E-116	Interfacing between DOTS computers and other oceanic functions and domestic flow control will provide efficient, coordinated traffic flow.
AVIATION SAFETY ANALYSIS (ASAS)	25,200.0	F&E-122	ASAS is the central on-line data base used by safety and security inspectors. These funds will provide new workstations so the system can be accessed quickly. Existing workstations are breaking down, cannot be repaired and must be replaced so inspectors can be effective.
TRANSITION PLANNING, ENGINEERING AND COORDINATION OF NAS PROGRAMS	3,000.0	F&E-124	Assures timely identification and resolution of intergration and implementation issues for the large number of NAS programs being implemented in the field.
PROCURE LONG-RANGE INTERNATIONAL. FLIGHT INSPECTION AIRCRAFT	18,600.0	F&E-125	Provides the FAA with adequate aircraft resources to meet these requirements in a timely and safe manner. The danger of international terrorist groups and/or foreign entities compromising our defense capabilities, due to the current excessive time required for flight inspection, will be minimized.

FY 1991 F&E PROJECTS
THAT HAD NO FY 1990 FUNDS

PROJECT TITLE	FY 1991 CONGRESSIONAL REQUEST	PAGE NUMBER	JUSTIFICATION FOR ACTIVITY
UPGRADE FLIGHT INSPECTION B-727 AIRCRAFT	2,795.0	F&E-126	Will enable the Pacific/Asian flight inspection program to keep pace with the proliferation of advanced navigational systems developed in support of the NAS and civil/military requirements. Failure to upgrade this aircraft will result in a serious deterioration of flight inspection capabilities in this area.
UPGRADE FLIGHT INSPECTION CV-580 AIRCRAFT	3,200.0	F&E-127	Provides a mission-ready aircraft equipped with state-of-the-art avionics systems which is compatible with the remainder of the CV-580 fleet for logistics and maintenance.
PROCURE AND INSTALL MARKER BEACON SYSTEMS	470.0	F&E-128	Provides a reliable airborne ILS component which is easily maintained and affords the precision measurement capability required for flight inspection missions.
PROCURE AND INSTALL COCKPIT VOICE RECORDERS AND FLIGHT DATA RECORDERS	2,620.0	F&E-129	Enables agency aircraft fleet to maintain compliance with the applicable Federal Aviation Regulations (FAR). Provides agency personnel with required training and familiarization with equipment which is in the general aviation fleet. Provides investigators with substantial information not otherwise available in the event of an accident.
UTILITY PLANT MODIFICATIONS	1,800.0	F&E-132	Ensures the controlled reliable operation of the Technical Center by replacing aged mechanical and electrical equipment before serious problems occur. The work will also save energy through the provision of free winter cooling and state-of-the-art mechanical and electrical equipment.
TURBINE ROTOR BURST TEST FACILITY	400.0	F&E-133	Enables FAA to meet commitments for assuring improved technology in turbine rotor system durability, fault prediction, and hazards prevention.
SPECIAL COMPONENT EVALUATION SYSTEM	550.0	F&E-139	Supports agency's regulatory action through improved analysis of engine safety measures. This system will provide a means to test fuel system components with varying conditions simulating typical operational parameters, which include: on-line viscosity, pressure, temperature, flow rate, control transient operations, and engine light-off regime performance. Controls fuel system components to present flow rates and pressure allowing precision measurements of fuel characteristics of both regular and modified fuel.
COMMUNICATION SYSTEM MODERNIZATION	230.0	F&E-140	Replaces communications equipment to meet FAA Technical Center responsibility to meet the requirement of reliability and continuous operation.

NAS PLAN VS. NON-NAS PLAN COSTS

Mr. LEHMAN. For the record, please update the table on NAS Plan and non-NAS Plan costs as shown on page 566 of last year's hearing record by revising data as necessary and adding data for 1991.

[The information follows:]

[In millions of dollars]

	Fiscal year—					
	1987	1988	1989	1990	1991	1992-2000
NAS plan	$772.6	$917.0	$1,136.7	$1,265.3	$1,660.0	$6,035.6
Non-NAS:						
ATC modern	32.0	82.7	40.9	405.7	724.1	10,189.8
Non-ATC modern	0.0	108.4	206.6	50.2	115.9	745.9
Total	804.6	1,108.1	1,384.2	1,721.2	2,500.0	16,971.3

F&E FIVE-YEAR FUNDING PLAN

Mr. LEHMAN. The Committee understands that you are providing a five-year F&E program plan for Chairman Oberstar's Committee. When will that plan be available, and will you also provide a copy to this Committee?

Mr. WHITTINGTON. We expect to have the Capital Investment Plan finished this fall, and we will provide you and Mr. Oberstar a copy.

CAPITAL INVESTMENT PLAN CONCEPT

Mr. LEHMAN. Last year, you advised us that you considered the NAS Plan "a rolling document," and that a DOT task force was looking at converting the NAS Plan into an ongoing activity. What is a "rolling document," and what is the status of the task force effort? Will you be merging the NAS Plan and non-NAS Plan activities?

[The information follows:]

A rolling document is one that addresses the need to continuously modernize the ATC system. Each year the plan is updated to drop the first year of the plan (which is completed) and to add one additional year to the end of the plan. In this way we will always be planning for a constant number of years. A new Capital Investment Plan which will include both the original NAS Plan requirements and new F&E requirements associated with growth, infrastructure, new capabilities, and previously non-NAS Plan activities will be completed and available this fall.

Mr. LEHMAN. A "rolling document" implies a certain plateau of funding which is maintained year to year. What is that plateau level?

[The information follows:]

We currently estimate that funding for the next five years will require $2.5–$3.0 billion a year which is in line with the FAA Reauthorization Legislation.

Mr. LEHMAN. Do you currently have a five-year plan for both NAS Plan and non-NAS Plan activities? If not, why not? Do you have a long-range planning estimate—for example, 10 years?

Mr. WHITTINGTON. We do. Our Capital Investment Plan is a detailed five-year plan for total F&E requirements. It will include the original NAS Plan as well as the new facilities and requirements that we envision.

Mr. LEHMAN. And beyond five years?

Mr. WHITTINGTON. Yes, the CIP is also looking as far ahead as the year 2000. Certainly not in the same depth, but the CIP will identify milestones and programs for the 1996 to 2000 period as well.

LARGEST ATC MODERNIZATION PROGRAM FUNDING STATUS

Mr. LEHMAN. Please also provide for the record an update of the chart showing the funding status of the 15 largest ATC modernization programs, as shown on page 567 of last year's hearing record.

[The information follows:]

[In millions of dollars]

Project title	Total approp/ fiscal year 1982-90	Obligated to date 3/31/90	Fiscal year 1991	Total approp/ planned thru 2000
AAS	939.1	728.7	556.3	4,430.9
MLS	178.3	106.3	35.2	1,112.8
SEIC	523.8	422.9	111.0	744.6
ASR	637.2	396.6	47.4	700.8
VSCS	235.7	77.7	185.1	892.4
TDWR	212.9	177.0	83.7	322.6
ISP	210.4	188.2	99.0	429.7
LRR	131.6	87.3	75.2	366.1
MODE S	330.8	287.9	37.0	495.3
ATCT/TRACON Modern	356.4	190.1	87.2	536.8
RMMS	217.0	147.1	25.0	345.5
RCE	200.6	174.4	16.8	245.7
ARTCC Plant Modern	106.3	48.3	46.2	332.0
Host Computer	290.7	283.0	—	290.7
FSAS	309.6	202.2	47.8	375.9

OUTYEAR F&E FUNDING LEVELS

Mr. LEHMAN. Last year, you estimated that F&E appropriations would remain at the $2.5 billion level for several years beginning in fiscal year 1991. Is that still your estimate?

Mr. WHITTINGTON. Our reauthorization indicates that we will have a total five-year program of about $13.5 billion. That assumes $3 billion in each fiscal year of 1992 and 1993, and $2.5 billion in 1991, 1994 and 1995.

FULL FUNDING CONCEPT

Mr. LEHMAN. What is the proposed amount of deferrals from the full funding concept in fiscal year 1991, and how does that compare to the previous two fiscal years? If the number is rising, please explain why.

Mr. WHITTINGTON. I will have Mr. Pozesky take up here.

Mr. POZESKY. Mr. Chairman, about 60 percent of the fiscal year 1991 budget is off of the full funding concept. Three large dollar programs, AAS, VSCS, and FSAS are off full funding. Seven to nine other programs have, over the years, been off the full funding concept.

In the 1991 budget, about $180 million is being deferred to future years. Which we are going to have to budget in the future to make up for the shortfall that we have this year.

Mr. LEHMAN. Please provide for the record a listing of all fiscal year 1991 F&E projects that are not fully funded, similar to the data shown on pages 574 to 576 of last year's hearing record. Also include a discussion of why it was believed necessary to abandon full funding in each of these cases.

[The information follows:]

FACILITIES AND EQUIPMENT

In general, for major high cost programs with a small number of facilities, a modified budgetary approach is being applied to equate the appropriation request with the planned obligations with the objective of reducing carryover.

PROJECT	FY-91 BUDGET SUBMISSION	DEFERRED AMOUNT
1a(1) Long Range Radar (LRR) Program	$75,200,000	$17,000,000

This joint FAA-Air Force program is funded at a level of $75,200,000 in the FY-1991 budget, which is the FAA share of the cost to be obligated in FY-1991 for hardware for 9 locations and on-site spares, test equipment and site implementation for 26 sites. Funding in the amount of $17,000,000 is deferred 1-year and will be needed in FY-1992.

1a(3) NEXRAD	$24,736,000	$ 7,200,000

This Joint FAA, U.S. Air Force, and the National Weather Service program is funded at a level of $24,736,000 in the FY-1991 budget which is the FAA share of the cost to be obligated for the National network radars, spare parts, field and program support. Funding in the amount of $7,200,000 is deferred 1-year and will be needed in FY-1992 for installation support and training.

1b(1) Advanced Automation System (AAS)	$556,300,000	N/A
1c(7) Voice Switching and Control System (USCS)	$185,100,000	N/A
3a(1) Flight Service Station Modernization	$ 47,800,000	N/A

Because of the magnitude of these programs, best procured on a long term phased implementation basis, the FAA never planned to fully fund these projects in one program year. FAA has budgeted these major efforts on an annual basis as on-going subelements of a multi-year contract. In every instance, the full cost-to-complete has been reported in budget backup material to OST, OMB, and the Congress.

2a(1) Terminal Doppler Weather Radar (TDWR)	$ 83,700,000	$ 3,000,000

The FY-1991 funding level of $83,700,000 will allow the procurement of 9 TDWR systems. Funding in the amount of $3,000,000 for program support has been deferred to FY-1992.

2a(4) Establish Airport Surveillance	$47,372,000	$12,300,000

This program has been off full funding since its inception in FY-1988. The FY-1991 funding of $47,372,000 will continue the establishment of these 4 Congressionally mandated surveillance radars and continue the relocation and improvement of existing radars at other locations. Funding in the amount of $12,300,000 for regional support and installation costs will be deferred and required in FY-1992.

2b(1) Los Angeles Basin TRACON	$76,100,000	$16,545,000

The $114,300,000 Los Angeles Basin TRACON Consolidation is a 3-year project, not considered to be on full funding. FY-1991 funding of $76,100,000 would provide for building construction and procurement of various electronic equipment. The remaining $16,545,000, deferred to FY-1992, is required for procurement of the voice switching and control system.

2b(4) Dallas/Fort Worth Metroplex $40,000,000 $12,800,000

The FY-1991 funding of $40,000,000 will be used to construct the west control tower, procure landing aids for the west runway, install one airport surveillance radar, and establish communications facilities. Funding in the amount of $12,800,000 will be deferred and required in FY-1992 for regional support of the TRACON expansion and west tower establishment, and CAT -I installation.

2c(2) Replace Terminal Air Traffic Control Facilities $70,500,000 $21,300,000

Funding is in the amount of $70,500,000 is provided in FY-1991 for construction and installation costs for 6 locations initiated in FY-1990, tower and base building construction at Los Angeles, and advanced engineering for three future tower replacements. Construction funding totaling $21,300,000 for these three facilities will be deferred and-needed in FY-1992.

2c(5) Interim Support Plan $99,000,000 $74,000,000

FY-1991 funding in the amount of $99,000,000 will be used to procure ARTS II and ARTS III positions and equipment, ASR-9's, ICSS backup equipment and airport weather sensors. Funding in the amount of $74,000,000 will be deferred and required FY-1992 to continue ASR-9 and ICSS backup procurements and ARTS II radar position establishment and upgrade long range radars.

2c(7) New Denver Airport Establishment $60,000,000 $43,400,000

Most of the hardware procurement associated with the New Denver airport project are off full funding: RTR, TCS, MALSR, LLWAS, PAPI, RVR, ALSF-11, ASDE III, and ASR-9. An additional $43,400,000 will be required to complete these projects as well as the airport cable loop.

Mr. **Lehman**. Also for the record, please discuss FAA's budget guidance concerning full funding and the criteria whereby full funding can be abandoned.

[The information follows:]

The Federal Aviation Administration (FAA) has been using a full funding concept that is consistent with Office of Management and Budget guidelines and has been endorsed by the Government Accounting Office and the Congress as a facilitating better budget estimates, providing cost savings, minimizing construction delays, and generally offering the basis for improved program management. In general terms, full funding is defined as the concept wherein Congress appropriates sufficient funding in a single year such that, at the time of contract award, funds are available to cover the total estimated cost to deliver the contract quantity of complete usable end items.

F&E budgets are "Full Funded:" the initial appropriation includes all the funding necessary to procure, install, and commission a specific number of systems. It normally takes approximately five years from the time of funding authorization until all equipment is installed, checked out, and commissioned. The obligation profiles vary considerably depending on the specific equipment involved, but generally schedules are as follows:

First year—contract award for major system hardware,

Second year—equipment is designed and fabricated by contractor,

Third year—initial systems delivered,

Fourth and fifth years—additional systems delivered, checked out and commissioned.

The FAA has departed from the full funding concept in certain limited instances with OST, OMB, and Congressional approval. In those instances, annual appropriation requests are more directly linked to the obligational availability required in that year. In a few instances where the procurement is too large or installation actions or phased activities cannot be undertaken in the first year of the appropriation, related funding requests are deferred to a future budget. There are cases when it would just not be sensible, necessary, or economical to seek all of the funds in a current budget request. However, in these cases the total cost-to-complete is shown for the program and is indicated in the justification as funding required in a future year thereby preserving the spirit of the full funding concept, which is to inform Congress in the first year of the request as to the anticipated total cost to complete the program. Examples of such instances are: procurement of initial spare parts on very large programs; training requirements that will not materialize for 2-3 years; and phased implementation on very large programs such as the Denver and Dallas/Ft. Worth airport programs.

Mr. **Lehman**. For fiscal year 1990, you were deferring the procurement of initial spares for some systems. Several years ago in the Department of Defense, they did this and found a few years later that a downturn in the budget had subsequently made the procurement of those spares impossible.

This led to charges of fielding a "hollow Army," and to more strict enforcement of the full funding principle. Is it really a good idea to defer spares procurement? How will you avoid the problems that plagued the DOD?

Mr. **Pozesky**. Mr. Chairman, we agree that we should not be in a position of deferring spares and, in fact, in 1990, we deferred spares only on the long-range radar program. However, we are requesting this year funding to pay for those spares.

We have gone off full funding, but we are buying the spares when we need them.

Mr. **Lehman**. Are there deferrals in 1991 for the spares?

Mr. **Pozesky**. There are no deferrals in 1991 for spares. We are going to buy the spares as they are needed.

Mr. **Lehman**. Does FAA intend on keeping some systems off of full funding in the next five years as part of the assumptions used in developing your current reauthorization proposal? If so, which systems and why?

[The information follows:]

The Reauthorization Proposal has assumed the following major high cost programs would continue to be funded at the level of projected obligations for the appropriation year to reduce carryover:

Programs whose funding concludes by 1993:
1a(3) Weather Radar Program (NEXRAD).
2a(1) Terminal Doppler Weather Radar (TDWR).
2a(4) Airport Surveillance Radar (ASR-9).
2b(1) LA Basin Facility Consolidation.
2b(4) Dallas/Ft. Worth Metroplex.
2c(5) Interim Support Plan (ISP).
2c(7) New Denver Airport.
3(a)(1) Flight Service Automation System (FSAS).
Programs that continue off full funding for the long terms:
1a(1) Long Range Radar (LRR).
1b(1) Advanced Automation System (AAS).
1c(7) Voice Switching and Control System (VSCS).
2c(2) Replace Air Traffic Control Towers (ATCT).

NEW EQUIPMENT INSTALLATIONS

Mr. LEHMAN. Last year, you advised us that you had no significant backlog in the installation of new equipment. Is that still the case today?

Mr. AQUILANO. Yes, it is, Mr. Chairman. There are no significant backlogs of equipment.

REPORT ON FIELD IMPLEMENTATION STAFFING REQUIREMENTS

Mr. LEHMAN. After last year's hearings, this subcommittee directed FAA to submit a report on field implementation staffing requirements by February 1990. This report has still not been received. Why haven't you completed this report, and when do you intend to do so?

[The information follows:]

The report has been delayed due to the large amount of staffing data which must be collected and analyzed in order to assess requirements. As indicated in the agency's request for an extension, an interim report will be provided in May. A draft version of this interim report which explains our human resource planning accomplishments and provides details concerning strategies under consideration for meeting requirements has been provided to GAO. The final report and action plan will be available in February 1991.

The agency has assessed the additional human resource skills needed for meeting NAS Plan facility and equipment (F&E) installation goals, and has taken actions to meet these requirements by requesting additional F&E positions, diverting SEI contractor capabilities to meet field implementation requirements, planning to fully utilize the contractor support provided by the TSSC, and considering a wide variety of strategies to meet any remaining shortfalls. Similarly, the agency is currently assessing the additional transitional personnel required to meet Operations Appropriation-related requirements. Three studies are being completed for this purpose. The combined results of the ARTCC Human Resource Requirements Study, the Terminal and General NAS (TAG) Human Resource Requirements Study, and the Other Facilities Human Resource Requirements Study. The combined results of these studies will yield an overall assessment of any additional human resources and an action plan for meeting NAS Plan implementation requirements.

The agency is developing a long-term NAS Human Resource Management Plan which will cover all NAS implementation requirements by 1993. The first edition of this ongoing and annually updated plan will be completed later in 1990.

EQUIPMENT INSTALLATION SCHEDULES

Mr. **Lehman**. You are requesting a large budget increase for equipment, and yet you haven't completed the analysis of whether you have adequate resources to implement those systems in the field. Wouldn't it be good management practice to slow down equipment purchases until this issue is resolved?

Mr. **Aquilano**. Mr. Chairman, we have requested additional positions in this budget, 375 F&E positions. We will continue to use our TSSC contract to augment our work force, and we will continue to analyze and assess the situation.

Mr. **Lehman**. Although the analysis is not complete, it appears from GAO's testimony that a significant shortfall does exist. Is this accurate, and does FAA know which possible solutions to the shortfall are most likely?

Mr. **Aquilano**. The shortfall does exist, and the annual manpower projections provided by our regional project management system, the RPMS system, validates that shortfall. We have requested the 375 F&E positions in fiscal year 1991, and intend to request additional positions in 1992. We will continue to utilize the TSSC contracts and technical support services contract and other support contracts such as A and E and SEIC.

REGIONAL PROJECT MANAGEMENT SYSTEM

Mr. **Lehman**. In its reply to GAO's report on field implementation last year, FAA promised to have its new Regional Project Management System, RPMS, fully operational by January 1990. However, it is still not fully operational at all sites. What percentage of sites are not fully operational, why is there a delay, and what is your current estimated completion date?

[The information follows:]

Scheduling, resourcing and budgeting software has been developed and implemented at all regional sites. Approximately 70% of all networks are loaded and seven of the nine regions are completing validation and review. Two regions are more than 50 percent complete. The implementation delays were due to late software completion and data transfer and processing constraints.

The current project completion date for RPMS schedules and resource estimates is May 30, 1990.

TECHNICAL SUPPORT SERVICES CONTRACT

Mr. **Lehman**. How many man-years of support have been provided by the technical services support contractor to date, and how does that compare to the estimated amount for that time period when the contract was signed in August 1988?

[The information follows:]

The contract was signed in August 1988 and at that time it was estimated we would utilize 842 manyears through March of 1990. The slow start up to the contract resulted in an actual utilization of 514 manyears of TSSC effort as of March 1990.

Mr. **Lehman**. Are you satisfied with the quality of work of the TSSC contractor?

Mr. **Aquilano**. Yes, we are. Post-work completion inspections indicate satisfactory performance. The contract was designed so that regions are not required to use it unless we have completely satisfactory work and performance by the contractor, both from a quality and a cost standpoint. Contract utilization by the regions has increased steadily.

Mr. LEHMAN. For the record, please break down the TSSC contract base of 3700 man-years and $344 million by fiscal year, and provide an obligation plan, month and calendar year, for fiscal year 1990 and 1991.

[The information follows:]

The chart below shows the breakdown of estimated manyears and cost by FY for the TSSC. The nature of the TSSC contract does not lend itself to monthly obligation planning. Hence we are responding by year only. The contract can be modified to increase the 3700 MY limitation by up to 50% or 1850 MY for a total of 5550 MY. The chart reflects our current projected usage of 4562 MY during the course of the contract.

Fiscal year	Estimated man years	Estimated cost
1988	7	$2M
1989	350	33M
1990	300	28M
1991	420	29M
1992	510	48M
Exercise 1st 2 year option:		
1993	575	54M
1994	600	56M
Exercise 2nd 2 year option:		
1995	600	56M
1996	600	56M
Exercise 50 percent option:		
1997	600	56M

Mr. LEHMAN. Under what criteria will the number of man-years be allowed to exceed 3700, and are there specified minimum or maximum numbers of man-years which can be added at any one time?

[The information follows:]

At such time as we approach the expenditure of 3700 MY and there is still a NAS requirement for additional TSSC effort, the contract can be modified to increase the 3700 MY limitation by up to 50 percent or 1850 MY for a total of 5550 MY. There is no specified minimum.

F&E SURPLUS FUNDS

Mr. LEHMAN. Last year, you told us that you were going to review the IG's findings of surplus obligations on F&E projects, page 581. What did you find, and have you recovered any surplus funds?

[The information follows:]

While the review in question has not yet been completed, we have issued an action notice, dated September 19, 1989, requiring the review of the project status codes assigned to each individual F&E job. Those jobs identified as physically completed are being reviewed to liquidate outstanding obligations, and those jobs identified as financially complete are being reviewed to withdraw excess funds. To date, no surplus funds have been identifed.

F&E UNOBLIGATED BALANCES

Mr. LEHMAN. For the past few years, you have underestimated your end-of-year unobligated balance. For example, last year, you estimated a fiscal year 1989 balance of $1.0 billion; the actual left-over amount was $1.4 billion. Despite large appropriation increases provided in fiscal year 1990 and requested in 1991, you are estimating decreases in the unobligated balance in each of those years.

Has your estimating gotten more accurate? How do you expect those balances to decline in the face of increasing appropriations?

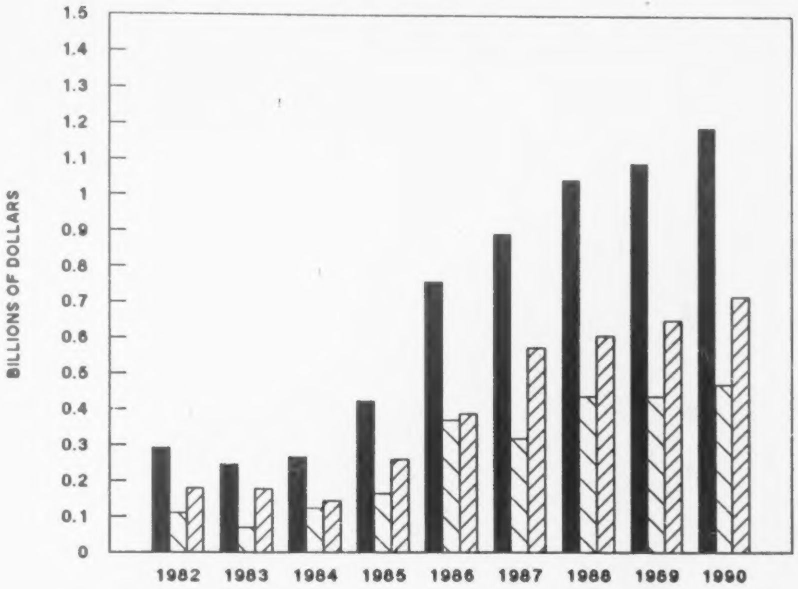
Mr. POZESKY. Mr. Chairman, we, once again, are predicting that our unobligated balance will either stay the same or go down slightly between 1990 and 1991. We believe we can achieve this because most of our major contracts were awarded, so we can obligate the money right away. As I said earlier, 60 percent of the budget is off of full funding, so we can obligate that right away as well.

Mr. LEHMAN. For the record, please provide a bar chart similar to the unobligated balance chart, but with data on outlays. Be sure to include separate bars for the overall total, appropriation years C/C-1, and C-n.

[The information follows:]

OUTLAYS, END OF YEAR

FACILITIES AND EQUPMENT



	1982	1983	1984	1985	1986	1987	1988	1989	1990
■ Total Outlays	.292	.248	.268	.425	.758	.892	1.043	1.088	1.188
▧ Outlays of Appropriations Made in Current and Prior Year	.111	.071	.124	.166	.369	.320	.436	.437	.471
▨ Outlays of Appropriations Two Years Old or More	.181	.177	.144	.259	.389	.572	.607	.651	.717

NAS PLAN DELAYS

Mr. **Lehman**. You stated last year that "there is no major program that has been definitely delayed because of lack of funds." Is that still your opinion?

Mr. **Pozesky**. Mr. Chairman, I think the key is the word "major." We have protected what we would call our major programs by giving them high priority in the budget. We have deferred some lesser priority programs to make up some shortfalls. So while it is true that some projects and programs have been deferred because of lack of funds, major ones have generally been given higher priority and therefore have been protected in the budget.

Mr. **Lehman**. For the record, please update the table on NAS Plan acquisition status found on page 583 of last year's hearing record.

[The information follows:]

NAS PLAN ACQUISITION DELAYS

Program	1981 implementation dates	1983 implementation dates	Current implementation dates	Note	Project completion date	Estimated procurement costs (millions)
Advanced automation system	1988	1990	1994	(1)	2001	$4,430.9
Voice switching and communication system	1988	1989	1992	(2)	1995	892.4
Host Computer	1985	1986	....	(3)	1989	290.7
Microwave landing system	1983	1985	TBD	(4)	TBD	TRD
Central weather processor	1985	1990	1990	(5)	1996	* 134.9
Flight service automation system	1983	1984	1990	(5)	1994	288.3
Radio microwave link	1983	1985	1986	(6)	1992	284.3
Long-range radar	1987	1988	1993	(7)	1996	336.1
Airport surveillance radar (ASR-9)	1985	1985	1989	(8)	1993	469.6
Mode S	1986	1986	1992	(8)	1996	495.3
Aircraft fleet conversion	1983	1983	1988	(9)	1988	84.5

* Reflects recent program adjustment.

[1] Delayed due to performance problems with design competition contractors revised requirements, software development.

[2] Implementation affected by underestimation of design problems incurred by both firms in design-competition phase.

[3] Delay due to contractor performance in design-competition phase.

[4] Delay due to contractor performance problems, contract is in the process of being terminated for default.

[5] Delay due to underestimation of software development requirement.

[6] Program approval was received late from OST, more competitive bids were received than anticipated.

[7] Program delayed due to funding shortfalls and delayed initiation. (Note: OST cited delay in consummating FAA/USAF agreement on number of systems and cost share.)

[8] Implementation delayed due to contractor performance problems.

[9] Program delayed due to late application changes and late submission of XDM #4 to OST.

NON-NAS PLAN MAJOR PROGRAMS

Mr. **Lehman**. Please also update the table of the 10 non-NAS Plan major programs found on page 584 of last year's hearing record.

[The information follows:]

Most of the non-NAS Plan programs do not involve multi-year contracts. Listed below are the 10 largest non-NAS Plan programs regardless of whether they involve a multi-year contract and with procurement cost shown through the year 2000.

NON-NAS PLAN MAJOR PROGRAMS

[In millions of dollars]

Program	Current implementation date	Project completion date	Total estimated procurement cost
Sustained national effort airspace system support	(1)	(1)	$3,678.4
Terminal radar digitizing, replacement and establish	1996	2000	1,049.3
ATCBI replacement and establish	2000	2004	1,006.7
System engineering technical assistance	1992	2005	728.1
Interim Support Plan	1990	1994	429.7
New airport facilities, Establish ATCT	1993	2005	330.4
Fuel Storage Tanks	1987	2001	206.3
Sustain interfacility communications	1990	2005	199.1
Denver	1989	1993	196.2
Expand ARTS IIIA Capacity and Provide MCI	1992	1995	169.5

[1] Continuing.

ECONOMIC ORDER QUANTITY PROCUREMENT

Mr. LEHMAN. For the record, provide a listing of any F&E projects which are in implementation and do not include sufficient funding to support economic order quantity procurement, as well as an explanation of why such low rates are requested.

[The information follows:]

We do not have any F&E program in implementation with insufficient funding to support economic order quantity procurement.

PROCUREMENT MILESTONES

Mr. LEHMAN. F&E funding is available for obligation for five years. Please provide production contract data showing the average number of months between appropriation and contract award; between contract award and equipment delivery; between delivery and commissioning.

[The information follows:]

The average times between appropriation and production contract award for major systems is 9 months, between contract award and equipment delivery is 24 months, between equipment delivery and commissioning is 7 months.

between equipment delivery and commissioning is 7 months.

The above average for delivery of equipment is based on first system delivery. Completion of the total equipment deliveries is considerably longer based on production rate and number of systems ordered.

FAA VS. DOD APPROPRIATIONS

Mr. LEHMAN. In the Department of Defense budget, similar accounts are only available for three years. Only shipbuilding is available for five. Clearly, it takes longer to build a major warship than to build an FAA radar or communications site. Why do you need so much longer than the DOD to obligate funds for similar types of programs?

Mr. STOER. Our appropriation for Facilities and Equipment is basically a composite of two different types of appropriations that DOD has, one for equipment and one for military construction. When you put the two together, the nature of our work takes about five years.

We are also buying many multiple copies of the same type of equipment that require fixed installation throughout the country, and our experience over the last decade indicates that five years is about the right amount of time to fully obligate the funds.

AIRWAY SCIENCE PROGRAMS

Mr. LEHMAN. You are proposing once again this year to delete bill language concerning demonstration grants for airway science programs. Last year, you told us that you were reviewing this program. What is the story this year? Is the airway science program meritorious?

[The information follows:]

FAA does not propose ending the Airway Science grant program. To date, all appropriated funds have been initiated by Congress, accounting for $44 million in total funding. These funds have been obligated through 44 individual grants to 25 different institutions. The benefits of the program are long term. The funds help provide enhanced educational opportunities to many classes of aviation students through the use of state-of-the-art instructional facilities and equipment. These students will enter into the professional workforce within both FAA and the aviation industry.

AIRWAY SCIENCE GRANT SUMMARY

Mr. LEHMAN. For the record, please update the data on airway science grants, as shown on page 586 of last year's hearing record.

[The information follows:]

AIRWAY SCIENCE GRANT PROGRAM

Fiscal Year	Institution	Grant Status	Award $	Purpose[1]
82	U/North Dakota[2]	Awarded	$4,000,000	F/E
83	U/North Dakota[2]	Awarded	2,750,000	F/E
83	Hampton U	Awarded	2,250,000	F/E
85	U/North Dakota[2]	Awarded	1,000,000	E
85	Florida Memorial[2]	Awarded	1,000,000	F
86	Tennessee State U	Pending recognition of AMS Curriculum	800,000	F/E
85	Embry-Riddle Aero U	Awarded	500,000	F
85	National U	Awarded	500,000	F/E
86	Middle Tenn State U	Awarded	871,044	F/E
86	Purdue U	Awarded	128,956	E
86/86	Texas Southern U	Awarded	200,000	F/E
			31,168[3]	
86	U/North Dakota[2]	Awarded	3,828,000[3]	F/E
86	Delta State U[2]	Awarded	2,201,100[3]	F/E
86	Florida Memorial C[2]	Awarded	2,871,000[3]	F/E
86	Cal State U	Pending recognition of AMS curriculum	48,082	E
86	Eliz City State U	Awarded	144,050	E
86	Dowling College	Awarded	223,300[3]	F/E
86	Ohio State U	Awarded	223,300	F/E
87	U/North Dakota[2]	Awarded	3,000,000	F/E
87	Florida Memorial C[2]	Awarded	2,000,000	E
87	Auburn U	Awarded	220,265	E
87	Embry-Riddle Aero U	Awarded	204,000	E
87	Flor Inst of Tech	Awarded	1,000,000	F
87	Hampton U	Awarded	300,000	F
87	Interamerican U of PR	Awarded	947,312	F/E
87	Kearney State C	Awarded	162,315	E
87	Middle Tenn State U	Awarded	90,164	E
87	National U	Awarded	500,000	E
87	Ohio State U	Pending revised plan	900,000	F
87	San Jose State U	Awarded	352,800	E

Fiscal Year	Institution	Grant Status	Award $
87	Southern Illinois U	Awarded	312,754
88	Auburn[2]	Awarded	237,600
88	Embry-Riddle Aero U[2]	Awarded	1,426,000
88	Flor Instit of Tech[2]	Awarded	237,600
88	Florida Memorial C[2]	Pending grant plan	1,425,000
88	U/North Dakota[2]	Awarded	475,000
89	Daniel Webster C	Pending grant agreement	146,636
89	Dowling C	Pending grant agreement	129,265
89	Embry-Riddle Aero U	Pending grant agreement	200,000
89	Metro State U	Pending grant agreement	200,000
89	National U	Pending grant agreement	173,735
89	Parks College	Pending grant agreement	150,365

OTHER EDUCATIONAL GRANTS

Fiscal Year	Institution	Grant Status	Award $
87	Barry U[2]	Awarded	3,914,000
88	Polytechnic U[2]	Awarded	1,425,000
90	U/North Dakota[2]	Pending legal authority	3,000,000
90	Fairmount State C	Pending legal authority	3,000,000
		TOTAL	$49,709,000

[1] F=Facilities; E=Equipment
[2] Congressionally designated awards
[3] Includes GRH reduction

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[1] F=Facilities; E=Equipment

[2] Congressionally designated awards

F&E OBLIGATION GOALS

Mr. LEHMAN. Before we leave this subject, you stated that obligations will increase in 1991 since most contracts are already awarded. Wasn't that also the case last year at this time? Or was there a problem of not having the contract finalized?

Mr. POZESKY. That is correct. We did award some contracts late last year, and we are predicting about $2.5 billion in obligations for this year.

Mr. STOER. Mr. Chairman, when those estimates were made about two years ago, we were approximately one year premature in our estimate of the actual obligations in fiscal year 1989. We are now running considerably ahead in this fiscal year. As of the end of March we had only obligated about $516 million last fiscal year at this time.

This year, we have obligated over $720 million as of March. So we are on track for $1.8 billion of obligations this year, and we expect to meet the $2.5 billion estimate for next year.

HOUSING, UTILITIES AND MISCELLANEOUS FACILITIES

Mr. LEHMAN. Your request for "housing, utilities and miscellaneous facilities" is up 81 percent, from $186 million to $337 million. Could you explain the major components of the increase and why it is necessary during fiscal year 1991?

Mr. STOER. Yes, sir. Those are in the form of obligations, many of which are from prior-year appropriations. And the nature of the kinds of projects that we have under way this fiscal year and in fiscal year 1991 include our hazardous materials management work, our airmen registry which will go to construction, fuel tank replacement where we are under mandate from EPA to do that work, and our ASAS program also falls into that program, where we are projecting a $21 million increase over a rather low base in 1990.

There are a number of previously appropriated programs that will be coming to maturation in 1991 which will increase obligations.

REIMBURSABLE OBLIGATIONS

Mr. LEHMAN. Last year, you estimated $45.5 million in reimbursables during fiscal year 1990. This year, that number is $70.9 million. That is a significant underestimate. Your estimate was also low in fiscal year 1989. Why is this?

Mr. STOER. Mr. Chairman, we would like to work with the staff. We don't recognize the $45 million estimate. As of this time last year, we were projecting about a $70.5 million plan for reimbursements in this account, and our current projection for fiscal year 1990 is the same.

So, we believe that we are right on track and that your question maybe a technical item that we can clear up with the staff.

Mr. LEHMAN. Should we conclude that your estimate for fiscal year 1991 reimbursements, $78.6 million, is also low? If not, why not?

Mr. STOER. We believe the estimate is correct based on all the agreements we have in place.

F&E UNOBLIGATION BALANCES

Mr. LEHMAN. You are projecting an unobligated balance of $1,275,456,000 as of September 30, 1990. What is that figure today, and is it consistent with your end-of-year goal?

Mr. STOER. Yes, sir, as of the end of March, our uncommitted balance was $2.4 billion, and as I mentioned a few minutes ago, our obligation rate, our burn rate this year is already over $700 million. We expect to be right on track with our $1.8 billion plan for the year.

Mr. LEHMAN. Likewise, you are projecting a first-year obligation rate of 77 percent in the fiscal year 1991 appropriation. As the following chart shows, the average for the past five fiscal years is only 49 percent. How can you convince us that you will be able to make such a big jump, given your past history?

[The chart follows:]

TRENDS IN FIRST YEAR OBLIGATION RATES

Fiscal year	Appropriation	First year obligation
1991	$2,500,000	77.0 percent.
1990	1,746,487	Unknown.
1989	1,383,184	47.9 percent.
1988	1,108,056	46.6 percent.
1987	804,584	59.6 percent.
1986	937,780	37.1 percent.
1985	1,358,000	53.3 percent.

Mr. STOER. We believe that it is pretty much right on target. We now have firm contracts with firm options and firm progress payment arrangements. We are confident, based on our experience this year, that we will be able to hit the $1.8 billion target for this year in obligations and $2.5 billion in fiscal year 1991.

The obligation rate this year so far is consistent with our projections.

F&E OBLIGATION RATES

Mr. LEHMAN. I like the words "burn rate." Is your restructured contract with AAS part of the solution yet?

Mr. STOER. Mr. Pozesky may want to talk about the rate of obligation under that contract. It has not been affected that much by the delivery schedule.

Mr. POZESKY. As Mr. Stoer said, the restructured AAS contract hasn't had a big effect on this rate. It just really is a projection of the fact that we are reaching the peak in many of these programs, and that each of these contracts are now requiring more money. As Mr. Stoer said, our current projections are about 15 to 20 percent ahead of where we were this time last year.

Mr. LEHMAN. Is it realistic to assume a 40 percent increase in fiscal year 1991 obligations coming right after a 34-percent increase the year before, and considering significant delays in eight of your 12 major programs?

MONTHLY OBLIGATION RATES

Mr. STOER. Yes, sir. And we would be happy to let the Committee know what our obligation rate is on a monthly basis if that would be helpful.

Mr. LEHMAN. Yes.

QUARTERLY DISTRIBUTION—FY 1991 FUNDS

Mr. LEHMAN. For the record, please break down the $2.5 billion budget request by fiscal year quarter in which those funds are expected to be obligated and expended.

[The information follows:]

Fiscal year	1st quarter	2nd quarter	3rd quarter	4th quarter	Total
OBLIGATIONS					
1991	361.2	529.4	459.5	454.0	1,804.1
1992	62.7	81.0	150.2	144.7	438.6
1993	32.9	35.3	76.5	75.1	219.8
1994	12.1	7.3	8.6	2.6	30.6
1995	6.0	.9	0	0	6.9
OUTLAYS					
1991	22.0	66.5	88.5	177.0	354.0
1992	56.1	109.0	165.1	330.3	660.5
1993	55.0	106.8	161.8	323.6	647.2
1994	222.3	111.0	73.3	37.9	444.5
1995	107.5	53.5	35.5	18.3	214.8
1996	43.8	21.9	14.3	7.5	87.5
1997	16.0	8.0	5.3	2.8	32.1
1998	29.6	15.0	10.0	4.8	59.4

F&E OBLIGATION RATE

Mr. LEHMAN. Please also update for the record the F&E obligation rate data found on pages 590 and 591 of last year's hearing record, and add appropriate figures for fiscal year 1991.

[The information follows:]

F&E Appropriation
Percent of Obligations by Activity FY 1986-1991 Budget

FY 1986 Approp. (Enact. 12/19/85)	FY-86	FY-87	FY-88	FY-89	Est. FY-90	Est. FY-91	Total
1. Air route traffic control centers	9.9	39.3	11.7	24.1	15.0		100.0
2. Airport traffic control towers	46.7	11.0	8.9	11.3	22.1		100.0
3. Flight service facilities	19.1	19.0	26.0	19.5	16.4		100.0
4. Air navigation facilities	20.7	10.4	19.0	27.6	22.3		100.0
5. Housing, utilities, and miscellaneous	57.7	10.2	7.0	11.9	13.2		100.0
6. Aircraft and related equipment	9.7	3.1	7.2	5.9	74.1		100.0
7. Development, test, and evaluation	63.6	6.9	4.9	3.8	20.8		100.0

FY 1987 Approp. (Enact. 10/18/86)	FY-86	FY-87	FY-88	FY-89	Est. FY-90	Est. FY-91	Total
1. Air route traffic control centers		60.6	16.2	12.7	3.7	6.8	100.0
2. Airport traffic control towers		53.9	8.4	17.9	8.4	11.4	100.0
3. Flight service facilities		47.8	34.3	3.3	6.0	8.6	100.0
4. Air navigation facilities		61.7	13.6	7.6	9.5	7.6	100.0
5. Housing, utilities, and miscellaneous		76.2	6.2	9.8	3.3	4.5	100.0
6. Aircraft and related equipment		0.2	47.8	1.1	50.9	0.0	100.0
7. Development, test, and evaluation		71.0	15.2	9.8	3.4	.6	100.0

FY 1988 Approp. (Enact. 12/22/87)	FY-86	FY-87	FY-88	FY-89	Est. FY-90	Est. FY-91	Total
1. Air route traffic control centers			55.0	33.3	7.8	3.7	96.8
2. Airport traffic control towers			25.3	20.8	24.3	13.3	83.7
3. Flight service facilities			30.3	27.0	15.5	15.8	88.6
4. Air navigation facilities			34.7	15.5	24.8	18.8	93.8
5. Housing, utilities, and miscellaneous			58.1	23.7	2.3	4.8	88.9
6. Aircraft and related equipment			5.9	13.5	20.6	34.2	74.2
7. Development, test, and evaluation			65.9	21.2	10.7	2.2	100.0

FY 1989 Approp. (Enact. 9/30/88)	FY-86	FY-87	FY-88	FY-89	Est. FY-90	Est. FY-91	Total
1. Air route traffic control centers				62.5	20.6	6.9	90.0
2. Airport traffic control towers				44.6	30.9	6.3	81.8
3. Flight service facilities				42.5	22.9	15.2	80.6
4. Air navigation facilities				12.6	36.1	17.7	66.4
5. Housing, utilities, and miscellaneous				37.8	30.2	11.7	79.7
6. Aircraft and related equipment				1.0	70.7	20.4	92.1
7. Development, test, and evaluation				67.1	18.9	14.0	100.0

F&E Appropriation
Percent of Obligations by Activity FY 1986-1991 Budget

FY 1990 Approp. (Enact. 11/21/89)	FY-86	FY-87	FY-88	FY-89	Est. FY-90	Est. FY-91	Total
1. Air route traffic control centers					83.2	5.9	89.1
2. Airport traffic control towers					41.6	6.4	48.0
3. Flight service facilities					48.2	24.9	73.1
4. Air navigation facilities					53.1	14.7	67.8
5. Housing, utilities, and miscellaneous					56.2	22.6	78.8
6. Aircraft and related equipment					33.1	38.6	71.7
7. Development, test, and evaluation					50.4	19.8	70.2
8. Personnel Compensation, Benefits, and Travel					100.0	0.0	100.0

FY 1991 Request	FY-86	FY-87	FY-88	FY-89	FY-90	Est. FY-91	Total
1. Air route traffic control centers						77.5	77.5
2. Airport traffic control towers						78.0	78.0
3. Flight service facilities						55.6	55.6
4. Air navigation facilities						64.3	64.3
5. Housing, utilities, and miscellaneous						80.0	80.0
6. Aircraft and related equipment						72.0	72.0
7. Development, test, and evaluation						69.0	69.0
8. Personnel Compensation, benefits, and Travel						100.0	100.0

F&E EXPENDITURE RATE

Mr. LEHMAN. Also for the record, provide a similar table showing expenditures, from fiscal years 1987 through 1991, actual and estimated.

[The information follows:]

F&E Appropriation
Percent of Expenditures by Activity FY 1987-1991

FY 1987 Approp. (Enact. 10/18/86)	FY-87	FY-88	FY-89	Est. FY-90	Est. FY-91	Total
1. Air route traffic control centers	18.3	24.3	26.2	11.0	6.0	85.8
2. Airport traffic control towers	11.4	21.0	24.3	16.0	9.3	82.0
3. Flight service facilities	32.6	28.1	14.0	12.0	10.0	96.7
4. Air navigation facilities	27.3	31.6	12.2	12.0	12.0	95.1
5. Housing, utilities, and miscellaneous	28.0	35.9	17.1	9.0	6.0	96.0
6. Aircraft and related equipment	0.1	15.5	22.6	23.0	27.0	88.2
7. Development, test, and evaluation	44.3	23.3	18.3	10.0	4.1	100.0

FY 1988 Approp. (Enact. 12/22/87)	FY-87	FY-88	FY-89	Est. FY-90	Est. FY-91	Total
1. Air route traffic control centers		17.2	26.5	28.2	18.1	90.0
2. Airport traffic control towers		10.1	21.9	25.7	19.8	77.5
3. Flight service facilities		22.1	24.6	18.8	14.3	79.8
4. Air navigation facilities		14.6	23.8	28.0	18.9	85.3
5. Housing, utilities, and miscellaneous		23.5	33.3	19.2	8.8	84.8
6. Aircraft and related equipment		2.8	6.7	23.4	27.5	60.4
7. Development, test, and evaluation		39.7	27.4	17.1	10.0	94.2

FY 1989 Approp. (Enact. 9/30/88)	FY-87	FY-88	FY-89	Est. FY-90	Est. FY-91	Total
1. Air route traffic control centers			14.1	22.7	27.8	64.6
2. Airport traffic control towers			13.7	18.5	26.9	59.1
3. Flight service facilities			28.3	26.2	20.1	74.6
4. Air navigation facilities			4.7	18.1	27.8	50.6
5. Housing, utilities, and miscellaneous			17.2	31.0	21.5	69.7
6. Aircraft and related equipment			.5	19.0	26.0	45.5
7. Development, test, and evaluation			41.6	35.3	13.0	89.9

FY 1990 Approp. (Enact. 11/21/89)	FY-87	FY-88	FY-89	Est. FY-90	Est. FY-91	Total
1. Air route traffic control centers				14.1	25.3	39.4
2. Airport traffic control towers				11.9	22.6	34.5
3. Flight service facilities				27.4	29.5	56.9
4. Air navigation facilities				11.5	25.5	37.0
5. Housing, utilities, and miscellaneous				23.8	28.5	52.3
6. Aircraft and related equipment				1.4	18.0	19.4
7. Development, test, and evaluation				38.2	25.0	63.2
8. Personnel Compensation, Benefits, and Travel				95.0	5.0	100.0

F&E Appropriation
Percent of Expenditures by Activity FY 1987-1991

FY 1991 Request	FY-87	FY-88	FY-89	FY-90	Est. FY-91	Total
1. Air route traffic control centers					14.1	14.1
2. Airport traffic control towers					11.5	11.5
3. Flight service facilities					27.0	27.0
4. Air navigation facilities					14.0	14.0
5. Housing, utilities, and miscellaneous					25.0	25.0
6. Aircraft and related equipment					3.0	3.0
7. Development, test, and evaluation					40.0	40.0
8. Personnel Compensation, benefits, and Travel					95.0	95.0

F&E UNOBLIGATED PROJECTS

Mr. LEHMAN. Please update for the record the tables on unobligated balances appearing on pages 592 and 593 of last year's hearing record.

[The information follows:]

	General	Trust Fund
Fiscal year:		
1970	$167,011	
1971	58,958	97,829
1972		199,218
1973		219,919
1974		333,548
1975		326,041
1976 (transition quarter)		287,095
1977		275,497
1978		261,393
1979		292,292
1980		364,533
1981		365,266
1982		454,336
1983		729,205
1984		1,113,893
1985		1,270,161
1986		1,371,661
1987		1,183,687
1988		1,320,057
1989		1,354,184
1990. (Estimate)		1,175,425

Note———Because of the time necessary to procure and manufacture electronic equipment and contractual facilities, it is not possible to complete all authorized work with 1 year. The funds carried into future years are earmarked to complete specific ongoing projects. Examples of work financed by the carryover balances include installation of equipment, construction, flight checking of completed facilities, and checkout of facilities before going operational.

FACILITIES AND EQUIPMENT APPROPRIATION
UNOBLIGATED BALANCE EOY, FY 1990
(Projected as of December 31, 1989)
(in Thousands)

Project	No Year	FY 1986	FY 1987	FY 1988	FY 1989	FY 1990	TOTAL
Percent of 1st year obligations		39.3%	60.2%	44.8%	47.9%	64.8%	
Air Route Traffic Control Facilities							
Long range radar			12,019.5	21,145.2	50,786.2	14,738.6	98,689.5
Automation equipment			2,055.3	486.7	40,891.9	75,146.7	118,580.6
Other center facilities			7,624.9	9,751.9	2,381.7	51,993.8	71,752.3
Airport Traffic Control Facilities							
Terminal area radar			15,635.6	51,019.0	31,356.5	43,391.5	141,402.6
Terminal area automation			1,696.6	21,679.3	165.7	69,626.1	93,167.7
Other tower facilities			5,161.1	14,670.4	51,229.9	130,636.9	201,698.3
Flight Service Facilities			2,469.7	13,559.9	15,904.8	16,503.2	48,437.6
Air Navigation Facilities							
VOR/VORTAC/DME			1,152.1	6,705.0	20,958.8	5,833.5	34,649.4
Low and medium frequency facilities			3,271.0	612.3	0.0	370.3	4,253.6
Instrument and visual landing aids			2,556.4	13,704.0	53,406.4	36,775.8	106,442.6
Housing, Utilities and Miscellaneous Facilities			5,210.9	19,181.8	62,914.6	143,773.3	231,080.6
Aircraft and Related Equipment			0.0	4,204.9	2,780.5	7,894.2	14,879.6
Development, Test, and Evaluation Facilities			0.0	0.0	1,400.0	8,990.6	10,390.6
Personnel Compensation, Benefits and Travel			0.0	0.0	0.0	0.0	0.0
TOTAL	0.0	0.0	58,853.1	176,720.4	334,177.0	605,674.5	1,175,425.0

....

The facilities and equipment program is a "fully-funded" program. The nature of this type program results in a substantial carryover of funds related to field construction and equipment installation due to the long lead time associated with the procurement process and equipment manufacture. The FY 1990 unobligated balance reflected here differs from amount reflected in the FY 1991 Congressional submission as F&E obligations can be expected to fall within a range $100 million higher or lower than the amount reflected in the budget. Detailed program obligation amounts are reflected at the higher level.

INCREASES FOR TRAVEL AND TRANSPORTATION

Mr. LEHMAN. Your request for travel and transportation of persons is up 25 percent, from $18.5 million to $23.1 million. Why is the increase needed? What would be the impact if these expenses were held at the fiscal year 1990 level?

Mr. STOER. Mr. Chairman, along the same lines of the discussion we had about GAO's assessment of our ability to install equipment on a timely basis, we are seeing much more rapid delivery of equipment to the field, which is calling for more travel and overtime on the part of the people in the FAA who install that equipment.

Attempting to hold our travel costs to this year's level would basically create a problem that we are attempting to avoid. That is, we really need to have our people out on the road installing the NAS Plan equipment when it comes due for installation. The travel costs can be expected to be roughly proportional to our overall obligations. .

INCREASES FOR "OTHER SERVICES"

Mr. LEHMAN. Your request for "other services" is up 43 percent, from $833.4 million to $1.2 billion. Why is this increase needed? For the record, please provide a detailed breakdown of this cost category for fiscal years 1990 and 1991.

[The information follows:]

[In thousands of dollars]

Other services	Fiscal year— 1990	Fiscal year— 1991
PCS/Temp Storage	110	170
Repair and Maintenance of Buildings	11,570	14,850
Repair and Maintenance of Equipment	650	920
Training	2,910	4,170
Guard Service	50	60
ADP Contract Services	2,380	2,620
A-76 Contract Studies	670	960
Interest Penalty	250	200
Other Contract Services	814,830	1,170,713
Total	833,420	1,194,663

This request is consistent with the Capital Investment Plan and represents FAA's mission requirements. The "Other Contract Services" line represents most of FAA's contractual services, major items in this category are shown below:

	Fiscal year— 1990	Fiscal year— 1991
TSSC	25,000	29,000
SEI	85,000	95,000
AAS	250,000	300,000
VSCS	172,000	185,000
Mode S	18,000	30,000

	Fiscal year—	
	1990	1991
NEXRAD	15,000	25,000
MODE C	10,000	35,000

CONSTRUCTION INCREASES

Mr. **Lehman**. Your request for "land and structures" is up 14 percent to $178 million. In the past two fiscal years, this budget category was $156 million, in fiscal year 1990, and $119 million in fiscal year 1989. Why are such continued increases for land and structures necessary?

Mr. **Stoer**. Mr. Chairman, in prior years, a lot of our money has gone into equipment-oriented contracts. We are now seeing a number of contracts and work that involves land and structures such as the new Denver Airport, the L.A. TRACON, the Clearwater, Florida and St. Petersburg, Florida control towers, our work in Buffalo and a number of center modifications. We have a larger component of bricks and mortar in our program currently than we have had recently.

NEW F & E POSITIONS

Mr. **Lehman**. You are requesting 375 additional F&E-funded positions, a 14-percent increase, in fiscal year 1991. Why do you need so many new positions?

Mr. **Aquilano**. The additional positions are required to meet the field installation workload associated with the schedule deliveries of the NAS equipment during fiscal year 1991.

[Additional information follows:]

The additional 375 F&E funded positions will support the large number of F&E programs being implemented beginning in fiscal year 1991 and continued in the following years. The larger proportion of these additional positions will be assigned to the en route center and related programs such as the Voice Switching and Control System (VSCS), the Radio Communications Equipment (RCE) and the Long Range Radar program.

Mr. **Lehman**. For the record, please break down these new positions by title, grade level, fiscal year 1991 PCB cost, current staffing level for similar positions, and estimated hiring plan (month and calendar year).

[The information follows:]

For fiscal year 1990 we are currently authorized 1368 full time permanent Facilities and Equipment (F&E) positions. In fiscal year 1991 we need to expand the F&E work force by 375 positions to continue to do more of the same type of work and essentially in proportion to the existing disciplines and grade levels. Therefore for FY 1991, the distribution of disciplines of the 375 positions is projected to be as follows: Civil Engineering-118 positions, Electronic Engineering-88 positions, Plant Construction 59 positions and Electronic Installation 110 positions.

Regarding the grade level, we would anticipate hiring a full range of grade levels, from GS-5 to GS-15, which will average out at about the existing average grade level which is currently a GS-11, and is anticipated to cost $7 million during FY 1991 for 188 full time equivalents (FTE's).

As is our customary practice, we would begin filling these positions with new hires starting at the beginning of the new fiscal year, and bring on additional people at a steady rate over the entire fiscal year. As a result the new hires would average out to working six months each during the fiscal year. This hiring plan complies with our budget figure of 188 additional FTE's associated with our 375 position request.

F&E ONBOARD STAFFING

Mr. LEHMAN. You currently estimate 1,368 positions for fiscal year 1990. How many positions are actually on board today?

Mr. STOER. Mr. Chairman, we checked the records out. We have 1293 people on board, which is 95 percent of our authorized strength, which is right about where we would like to be. This is as of March 31, 1990.

Mr. LEHMAN. What programs are they going to be aimed for? What are the main programs that these people are heading for?

Mr. AQUILANO. The F&E field positions are to support the installation of the new equipment.

Mr. LEHMAN. Any specific field position programs?

Mr. AQUILANO. Field engineers that would do things like the engineering contracting, either watching contractors or actually doing physical installation.

Mr. LEHMAN. Expand on it for the record.

Mr. AQUILANO. Site preparation.

[The information follows:]

FAA F&E in-house employees monitor contractor efforts to ensure compliance with Agency regulations and criteria, make site selections, certificate facility performance and perform special installation due to the scope, variety or unique requirements of some projects. FAA personnel are also required for improvement and modernization projects since much of the work is performed in an operating facility and accomplished in a live environment.

Significant FY 1991 field workload includes: building modifications and power upgrades to handle VSCS and AAS in the centers; site preparation to begin installing VSCS and AAS consoles: extensive tower modernizations to bring our 20-30 year old towers up to standards in preparation for AAS; continued installations of instrument landing systems, ASR-9's, RCE equipment, and visual NAVAIDS; and test support at the Technical Center to insure projects are ready for deployment.

OVERTIME AND HOLIDAY PAY INCREASE

Mr. LEHMAN. Why are you requesting a 20 percent increase in overtime and holiday pay, and how much is budgeted for overtime and holiday pay in both fiscal years 1990 and 1991?

Mr. STOER. Mr. Chairman, the overtime pay is going up in order to help us stay on schedule with some of the installation work, and the amount of the increase is, from our point of view, fairly small—about a $700,000 increase. We have about $3.1 million planned for overtime this fiscal year, and that will rise to about $3.8 million in fiscal year 1991.

The holiday pay is a fairly small number, $60,000 this year, and $71,000 next year.

F&E PERSONAL SERVICES

Mr. LEHMAN. For the record, please provide a listing of estimated fiscal year 1991 personal services payments, including the names of each person, the amount budgeted, and a brief description of the tasks to be performed.

[The information follows:]

Based on anticipated requirements for fiscal year 1991, personal services payments have been budgeted as follows:

Name	Job performed	Amount
Gary Monnseratt	Reemployed annuitant—Material Expeditor	$14,000
Fred Rasche	Reemployed annuitant—Elwood Runway end identification lights.	14,000
Additional requirements not specifically identified by name for various F&E projects.		24,000

F&E STAFFING

Mr. LEHMAN. Please also update for the record the F&E staffing table found on page 588 of last year's hearing record by adding an estimate for fiscal years 1991 and 1992.

[The information follows:]

[Figures in parens indicate end-of-year employment]

	Authorized staffing	Field engineering and implementation	Quality assurance	Flight inspection
1987	1,162	1,058	75	29
	(1,267)	(1,165)	(71)	(31)
1988	1,162	1,058	75	29
Actual	(1,281)	(1,190)	(71)	(20)
1989	1,162	1,058	75	29
Actual	(1,276)	(1,183)	(66)	(27)
1990	1,368	1,264	75	29
Estimate	(1,342)	(1,243)	(71)	(28)
1991	1,743	1,639	75	29
Estimate	(1,708)	(1,609)	(71)	(28)
1992	([1])	([1])	([1])	([1])

[1] Data not available at this time.

F&E PERSONNEL COMPENSATION COSTS

Mr. LEHMAN. Please also update for the record the cost breakdown of F&E personnel compensation costs as shown on page 589 of last year's hearing record.

[The information follows:]

FTP F&E PERSONNEL COMPENSATION COSTS

[Dollar amounts in thousands]

	Fiscal year—							
	1984 (actual)	1985 (actual)	1986 (actual)	1987 (actual)	1988 (actual)	1989 (actual)	1990 (estimate)	1991 (estimate)
Full-time permanent cost	$27,498	$33,573	$47,542	$40,434	$39,271	$45,559	$42,119	$53,010
FTE employment	864	1,101	1,150	1,166	1,245	1,287	1,311	1,499
FTE rate	$31.8	$30.5	$41.3	$34.7	$31.5	$35.4	$32.1	$35.4

F&E "OTHER" PERSONNEL COMPENSATION

Mr. LEHMAN. Please also update for the record the table on "other" personnel compensation costs", as shown on page 589 of last year's hearing record.

[The information follows:]

OTHER PERSONNEL COMPENSATION COSTS

[Dollar amounts in thousands]

	Fiscal year—							
	1984 (actual)	1985 (actual)	1986 (actual)	1987 (actual)	1988 (actual)	1989 (actual)	1990 (estimate)	1991 (estimate)
Overtime	1,787	2,540	1,106	2,655	2,722	2,725	3,100	3,800
Holiday pay	33	39	38	62	72	70	60	71
Sunday pay	3	6	6	3	3	8	15	18
Night differential	11	3	0	21	21	37	36	36
Hazardous pay [1]	7	14	6	7	5	15	10	12
Employee awards	55	102	71	165	303	465	353	405
Total	1,896	2,704	1,227	2,913	3,126	3,320	3,574	4,342

[1] Compensation above the basic rate because of assignments involving hazardous duty, physical hardships, and working conditions of an unusual nature (5 U.S.C. 5545(d)).

NAS PLAN GOALS

Mr. LEHMAN. As stated in your justification, page F&E-8, your original goals for the NAS Plan included: A reduction in operational errors of 80 percent; a doubling of air traffic controller productivity; a reduction in operations and maintenance staff of 33 percent; no increase in annual operations cost.

Most of these achievements were to be achieved in the year 2000, using 1982 as the baseline year. After eight years of development and $7.2 billion in spending, how close are we today to meeting those goals?

Mr. POZESKY. We do have a program to track many of these benefits. We believe that the investment in the NAS Plan has produced many of the projected goals. Some examples, if I may. Operational errors were projected to be down 72 percent of 1984 levels as of the end of 1989. They were actually down to 49.8 percent of what they were in the beginning of 1984. So we have reduced operational errors more than expected.

By the end of 1989, air traffic controller productivity has increased by about 17 percent over 1980 levels, and are projected to increase to about 35 percent by the year 2000.

The cost of FAA maintenance field operations, in terms of 1981 dollars is on track, i.e., fiscal year 1990 and 1991 projections are equivalent to those in 1981, if you use constant dollars. So we do have a program to track these benefits, and we are on target with many of these goals.

Mr. LEHMAN. Please expand on your answer for the record, and include performance data comparing the baseline to the current year and the original goal year.

[The information follows:]

Goal	Baseline year	Baseline value	Current value
Operational errors	1984	[1] 157.3	[1] 78.3
Controller productivity	1980	10722	12727

Goal	Baseline year	Baseline value	Current value
Maintenance staffing	1980	11602	9539
Field operating cost	1980	$1.62B	$1.58B

[1] Per month

Controller productivity is shown in terms of operations or services per position. Maintenance staffing is shown in terms of number of people. Field operating costs are in terms of 1981 dollars.

Operational errors are well below the projected values for the first quarter of FY1990 and are forecasted to stay below the original goals established in 1984. A computerized system to determine violations of minimum separation criteria was implemented in 1983-84. Consistent operational data collection/quantification replaced subjective judgements and confirms the downward trend in operational errors.

Originally forecasted controller productivity increases were based on 1979-90 perceptions of future aviation activity and of likely NAS Plan implementation schedules for a number of major (potentially productivity enhancing) projects. Aviation activity originally forecasted has not materialized in some areas. Full realization of advanced automation program and related projects are not expected to occur now until after the year 2000.

Maintenance staffing estimates, savings and performance are measured based on the 1981 estimate of the fielded systems at that time. The base staffing in 1980 was 11,602 positions. Without the NAS Plan, this staffing would have increased to 22,620 positions in 2000 primarily due to aging equipment and obsolescence. The current maintenance staffing request is for 9,539 positions. Staffing levels are projected to increase slightly over the next two years as a surge of new systems is deployed. However, staffing should substantially decrease thereafter.

Field operations costs include personnel (field, not headquarters), non personnel costs (rents, utilities, and other costs) and leased communication costs. Personnel costs are determined by multiplying the actual budgeted full time equivalent positions for Air Traffic enroute, terminal and flight service station, and Airway Facilities maintenance by the 1981 costs for those positions. This provides the field personnel costs in 1981 dollars.

PROTESTED F&E CONTRACT AWARDS

Mr. LEHMAN. Please update for the record the breakdown of protested F&E contract awards found on pages 595 and 596 of last year's hearing record beginning on the date of that submission and continuing to the present date.

[The information follows:]

Project	Amount of Award	Contractor's Name	Protester	Date of Award	Date of Protest	Reason for Protest	Final Disposition
Datamux Equip.	24,170,375	Codex	Racal Info	4/12/90	8/21/89	Specification	Denied
Datamox Equip.	24,170,375	Codex	AT&T Paradyne	4/12/90	4/24/90	Commercial Availability	Pending
Maintenance Data Terminals (MDT)	6,326,700	International Data Products	Rocky Mountain Trading Co. (RMTC)	8/21/89	8/26/89	Bid of protestor was considered nonresponsive	Dismissed
Maintenance Data Terminals (MDT)	6,326,700	International Data Products	Information Systems & Network Corp. (ISN)	8/21/89	8/23/89	Bid of protestor was considered nmonresponsive	Dismissed
Maintenance Data Terminals (MDT)	6,326,700	International	University Systems, Inc. (USI)	8/21/89	8/31/89	Bid of protestor was considered nonresponsive	Dismissed
Full Duplex Interim Communication Network RFP DTFA01-89-R-06487	516,120	Contel	GE American Communications	11/28/89	10/11/89	Offeror felt its proposal met the RFP requirements	Denied
Full Duplex Interim Communication Network RFP DTFA01-89-R-06487	516,120	Contel	Hughes Network Systems	11/28/89	10/19/89	Offeror felt its proposal met the RFP requirements	Denied
Full Duplex Interim Communication Network	516,120	Contel	Advanced Innovative Technology	11/28/89	8/14/89	Offeror felt its proposal met the RFP requirements	Denied
Meteorologist Weather Processor RFP DTFA01-89-R-88613	17,566,372	Harris Corp.	Contel	9/29/89	7/10/89	Offeror felt its proposal met the RFP requirement	Denied
Radomes Replacement	Pre-Solicitation		Microdyne	N/A	3/15/90	See Note	FAA intends to deny. Letter to Microdyne in Legal for review.

Note: The FAA requirement for radome sample testing is illegal, creates an unfair competitive advantage for ESSCO, is unfair to small businesses, restricts competition, and is in violation of CICA.

F&E OFFSETTING COLLECTIONS

Mr. **LEHMAN**. Please update the table on F&E offsetting collections appearing on page 597 of last year's hearing record and add a 1991 column.

[The information follows:]

ESTIMATED FEDERAL AND NON-FEDERAL OFFSETTING COLLECTIONS FOR FISCAL YEAR 1990 AND FISCAL YEAR 1991

[In thousands]

	1990	1991
Federal:		
USAF	$74,547	$12,578
U.S. Navy	3,020	12,457
U.S. Army	672	15,404
U.S. Coast Guard	0	(58)
NOAA/NWS	23	131
Department of Energy	34	0
Department of Justice	0	0
Other government	3,110	1,161
Subtotal	81,405	41,673
Non-Federal:		
State, County, city government	3,370	5,352
Airport/Port authority	2,662	3,570
Airlines/corp/private	69	88
Foreign countries	0	221
Subtotal	6,102	9,231
Total collections	87,508	50,904

The current estimate of reimbursable obligations is based on actual agreements on hand. No funding is requested for our reimbursable program as collections offset all obligations incurred.

LONG RANGE RADAR PROCUREMENT

Mr. **LEHMAN**. You are requesting $72.5 million to procure nine long-range radars. Seventeen radars have been procured in previous years. According to the GAO, delivery of the first radar has slipped 242 days since last year, and will not occur until May 1992. Given this slip, how do you justify asking for another nine radars this year?

Mr. **POZESKY**. Mr. Chairman, we have gone back and tried to research this, and I think we have detected an error in last year's testimony. The long-range radar contract was signed in the summer of 1988 with the contractor, Westinghouse, and we have not had a slip in schedule since that signing.

What apparently happened with last year's testimony was, a 240-day slip actually occurred last year and was not reported last year. We have gone back and looked at the draft GAO report, and we are working with GAO to fix that problem.

The program has remained on track. The error occurred in last year's information that was provided for the record. The 242-day slip should have been reported last year, and it was due to the late signing of the contract with the vendor and the difficulties we had in awarding that contract.

We are on target then for needing this money once the contract was under way.

Mr. LEHMAN. You stopped sliding?

Mr. POZESKY. Yes, sir. And I hope we don't start.

Mr. LEHMAN. Last year, you stated that one of the reasons used to determine how many long-range radars to fund in fiscal year 1990 was the agency's ability to deploy these systems. Since that time, you have experienced delays of 200 to 350 days in program schedules. This obviously affects your ability to deploy the system. How did the revised schedules change your fiscal year 1991 budget request, compared to last year's estimate?

Mr. POZESKY. Again, as I answered in the last question, there is an error here. The slip was a year ago. Since last year, we are on target and we do need the money in fiscal year 1991 to continue the program as structured back in the summer of 1988.

LRR CRITICAL DESIGN REVIEW

Mr. LEHMAN. Critical design review, CDR, is not scheduled until June 1990. Why have you procured 17 radars before this fundamental review of its design was completed? What percentage of the design and development for this radar remains to be done?

Mr. POZESKY. We are ahead of schedule on the CDR. The CDR was satisfactorily completed in February of 1990, four months before June of 1990.

LRR DESIGN PROBLEMS

Mr. LEHMAN. Do you have any outstanding design problems?

Mr. POZESKY. I am not currently aware of any, but knowing the complexity of the radar, there is probably a lot of things that require further resolution, and I would be happy to provide those for the record.

[The information follows:]

There are no outstanding long range radar design problems.

LRR PRODUCTION READINESS REVIEW

Mr. LEHMAN. Has this system completed a thorough Production Readiness Review? If so, when was that review completed?

[The information follows:]

The long range radar program has completed 18 months of design review before entering production. During this time system requirements, preliminary design and critical design reviews were held. The design review process ended with the completion of critical design review in February 1990.

FY 1991 LONG-RANGE RADAR CONTRACT COSTS

Mr. LEHMAN. Last year, you estimated a fiscal year 1991 contract requirement of $92.2 million for nine radars. This year, your budget request is only $75.2 million. Since this is a firm fixed price contract, why are we seeing such changes in contract costs?

[The information follows:]

In fiscal year 1990 the program went off full-funding and implemented a phased-funding approach for items such as ancillary equipment and spares. This was an effort to request only amounts actually needed in each fiscal year. The original plan was to have the program off full-funding for only one year; however, we have now decided to continue that approach in FY 1991. The funds requested will provide for

FAA's share of the project. Ancillary equipment required on a time-phased basis to complete procurement will be requested in a future budget.

LONG-RANGE RADAR REPLACEMENT MILESTONES

Mr. LEHMAN. For the record, please update the LRR replacement milestone data as shown on page 598 of last year's hearing record.

[The information follows:]

	Last year	Revised schedule
First system operational	November 1992	December 1993.
Last system operational	November 1994	January 1996.

LONG-RANGE RADAR SITES

Mr. LEHMAN. Also for the record, please update the LRR site data as shown on page 599 of last year's hearing record.

[The information follows:]

Answer:

Location	Operational date	Year funded
FAA Aeronautical Center	December 1993	Fiscal year 1988
Mill Valley, CA	December 1993	Fiscal year 1989
Makah, WA	December 1993	Fiscal year 1989
Oceana, VA	January 1993	Fiscal year 1989
Lake Charles, LA	February 1994	Fiscal year 1989
Paso Robles, CA	April 1994	Fiscal year 1989
Crescent City, CA	April 1994	Fiscal year 1989
Jedburg, SC	May 1994	Fiscal year 1989
Mt. Santa Rosa, Guam	June 1994	Fiscal year 1990
Tyndall, FL	June 1994	Fiscal year 1990
Salem, OR	July 1994	Fiscal year 1990
Gibbsboro, NJ	August 1994	Fiscal year 1990
Ellington, TX	August 1994	Fiscal year 1990
Watford City, ND	September 1994	Fiscal year 1990
Slidell, LA	September 1994	Fiscal year 1990
Cross City, FL	September 1994	Fiscal year 1990
Fort Fisher, NC	October 1994	Fiscal year 1990
Bucks Harbor, ME	November 1994	Fiscal year 1991
El Paso, TX	November 1994	Fiscal year 1991
Phoenix, AZ	December 1994	Fiscal year 1991
Richmond, FL	January 1994	Fiscal year 1991
Nashwauk, MN	January 1994	Fiscal year 1991
Lakeside, MT	February 1995	Fiscal year 1991
Mt. Kaala, HI	March 1995	Fiscal year 1991
Sonora, TX	March 1995	Fiscal year 1991
Kenai, AK	August 1995	Fiscal year 1991
Whitehouse, FL	April 1995	Beyond fiscal year 1991.
Riverhead, NY	April 1995	
Silver City, NM	April 1995	
Empire, MI	May 1995	
Finley, ND	June 1995	
Utica, NY	June 1995	
Mica Peak, WA	July 1995	
Mt. Laguna, CA	August 1995	
Malmstrom, MT	August 1995	
Patrick, FL	September 1995	
Odessa, FL	October 1995	
Fort Lonesome, FL	October 1995	

Location	Operational date	Year funded
North Truro, MA	November 1995	
Oilton, TX	January 1996	

LONG-RANGE RADAR MANUFACTURING SCHEDULE

Mr. LEHMAN. What is the estimated manufacturing time for this system, from receipt of order to delivery, in months?

[The information follows:]

The program is a multiyear purchase with different delivery times associated with each year's buy. The first system's delivery time is approximately 48 months and includes design development and OT&E testing. the next seven systems, which are the second year buy, take an average of 39 months to deliver. The nine systems in the third buy take an average of 32 months to deliver, while the nine systems in the fourth year buy take an average of 26 months to deliver.

LONG-RANGE RADAR COSTS AND BENEFITS

Mr. LEHMAN. Please provide for the record the estimated unit costs and labor man-hours for different production lots of this system, and explain what benefits you are anticipating from learning curve efficiencies.

[The information follows:]

The contract has no provisions for different labor lots. It is a fixed price contract that is incrementally funded.

LONG-RANGE RADAR FUNDING ESTIMATES

Mr. LEHMAN. Please also provide a financial summary for the LRR program, breaking down by fiscal year the costs for design-development, site survey-site selection, radar production, spares, test equipment, site implementation, and other costs. Include data for all fiscal years, including future estimates beyond fiscal year 1991.

[The information follows:]

Below is a financial summary for the LRR program which includes FAA, USAF, and Navy funds.

LRR FINANCIAL SUMMARY

[In millions of dollars]

	Prior	1988	1989	1990	1991	1992	1993
Contract (Includes design/development/radar production):							
Basic		$18.3	$56.7	$72.7	$62.1	$61.9	
Options			1.8	16.5			$128.5
Spares/Test					40.0	30.0	30.0
Site survey/Site selection	$0.2	0.6	1.1	10.0	30.0	30.0	50.0
Beacon Antenna			4.1				
Other	8.2	3.3	17.0	8.0	20.0	9.0	12.5

LONG-RANGE RADAR FUNDING SCHEDULE

Mr. LEHMAN. Why was this program selected to go off the full funding principle, and how much of the fiscal year 1991 requirement is being deferred?

Mr. POZESKY. We didn't think we would obligate the funds in the year they were requested, so we thought the program was a good candidate to go off full funding. We are estimating about $17 million will be required in future budgets to repay the full funding on this program.

LONG-RANGE RADAR IMPLEMENTATION ASSUMPTIONS

Mr. **LEHMAN**. In determining that an additional nine systems were needed in fiscal year 1991, did FAA consider the implementation workload projected for all systems in that geographical area? Particularly, what assumptions were used in estimating in-house and contractor implementation resources?

[The information follows:]

A Project Implementation Plan has been coordinated with all FAA regions concerning the installation and testing of each Long Range Radar. The nine radars programmed for FY 1991 are an integral part of this plan. Each respective region has concurred that they have the resources necessary to prepare the sites for these radars. These resources comprise both FAA in-house capabilities as well as local firms and companies as deemed feasible, appropriate, and cost-effective.

LONG-RANGE RADAR OBLIGATION RATE

Mr. **LEHMAN**. As shown last year, obligations for this system have been very slow; the unobligated balance was over 50 percent. What is the status today?

Mr. **POZESKY**. I will give you some numbers for the record. Appropriated through fiscal year 1990, $257.8 million. Obligated through the end of March, $191.7 million. We are projecting that by the end of fiscal year 1990, we will have roughly $249.8 or $250 million, of the $257 million obligated.

RADAR MICROWAVE LINK (RML)

Mr. **LEHMAN**. Your request for $21 million is primarily for a product improvement called the restoral switching system. This system is 65 percent through the implementation phase. Why wasn't this requirement not included in the original specifications which led to the fiscal year 1985 contract?

Mr. **POZESKY**. It was included in the original program. A conscious decision was made to buy this system separately. We didn't want to defer the microwave system because it was much more extensive than the switching system. The requirements for the restoral switching were still under development five years ago when we awarded the contract for the microwave system.

We didn't want to defer the early benefit. Again, it was not an error, but a conscious decision to procure the switching system separately, made in the early days of the program. I don't have an exact date. It was probably in the 1986 or 1987 time frame.

Mr. **LEHMAN**. Were performance criteria included in the original RML contract, and if so, why isn't the switch being provided at no cost to the FAA?

[The information follows:]

Performance criteria were included in the original RML replacement (RCL) contract covering the basic microwave transmission path from ARTCC to ARTCC. This was in accordance with our acquisition strategy to award separate contracts for the microwave and switching equipment.

The detailed requirements for the microwave system were well known at the beginning of the program whereas the requirements for the switching system were still under development.

The microwave network consisting of nearly 1,000 sites is extensive compared to the switching system which consists of only 24 sites. It would take considerably longer to implement the microwave system than the switching system.

We did not want to defer the early benefits to be obtained from the new microwave system until the requirements of the switching system were well defined; therefore, we proceeded with the RCL contract.

Mr. LEHMAN. For the record, please provide a detailed explanation of the benefits from the restoral switching system and its associated acquisition strategy and program schedule.

[The information follows:]

The RCR will provide digital switching equipment to increase the reliability and availability of critical and essential services on FAA owned and leased facilities. Implementing the RCR is key to transitioning the FAA communications systems to a digital architecture.

Our strategy is to acquire the RCR using an indefinite delivery, indefinite quantities requirements type contract. Contract award is scheduled for May 1991. The RCR will begin implementation in May 1992.

RESTORAL SWITCH MILESTONE AND JUSTIFICATION

Mr. LEHMAN. Also for the record, please explain when the need for the restoral switch was identified, and provide a copy of the analysis which justified the addition of such a switch.

[The information follows:]

The requirement for a restoral switch was identified when the Radar Microwave Link (RML) Replacement and Expansion Program was established. This requirement was necessary because the Radio Communications Link (RCL) microwave systems, under the replacement and expansion program, were designed with an availability of 0.9998, and National Air Space (NAS) critical circuits require an availability of 0.9999. The restoral switch will provide the required 0.99999 availability for RCL circuits.

These requirements are documented in NAS System Specification (NAS-SS-1000), Volume IV, dated December 6, 1986. This is a large document. We have extracted pertinent paragraphs from the document that address the program as follows:

Paragraph 3.2.1.4.1.2.1, Availability, reads: Taking into account the backup capability provided by alternate transmission paths, the transmission equipment shall provide the following availability:

a. Critical service shall have an availability of at least 0.99999;

Paragraph 3.2.1.4.1.2.3.1, reads: The RCL shall provide an operational availability of at least 0.9998 as measured between any of the following reference terminal pairs (end-end systems):

a. ZBW-ZDV; b. ZDA-ZAV; c. ZSE-ZID; d. ZLA-ZTL; e. ZNY-ZAB

This last paragraph is based on a 0.9998 availability for a circuit path up to 1800 miles.

NEXRAD TESTING STATUS

Mr. LEHMAN. Operational testing of the NEXRAD radar was scheduled for March through July 1989. What were the results of those tests, and are there any outstanding deficiencies today?

Mr. POZESKY. Mr. Chairman, let me remind the committee that this is a contract that is administered by the National Weather Service. The operational testing was completed in August of 1989. Several problems were identified. Major deficiencies were low reliability of the transmitter, failure to recover quickly from power outages, operator work station software errors, and data quality problems.

These deficiencies were tested again, and in January of this year, the contractor, UNISYS Corporation, gave a satisfactory demonstration that they had corrected them.

As of the moment, we still have immature technical manuals and software documentation deficiencies, and UNISYS has given the National Weather Service the assurances that these will be corrected. They will be corrected before the government will accept the first limited production unit.

Mr. **Lehman**. Can you expand on the deficiencies for the record?

Mr. **Pozesky**. Yes, sir.

[The information follows:]

The operational testing was completed in August 1989. Test results showed that NEXRAD successfully met the operational effectiveness objectives. Major deficiencies identified in this test were:

Low reliability of the prototype transmitter.
Failure to recover quickly from power outages.
Operator work station software errors.
Data quality problems.

Outstanding deficiencies are: technical manuals and software documentation.

The technical manuals used for test and evaluation were preliminary manuals that need considerable improvement.

UNISYS is upgrading the manuals to meet government requirements. This effort is being monitored by a team of experts drawn from the 3 sponsoring organizations. Although the operational software is generally acceptable, the software documentation required for the government to maintain the software for the NEXRAD life cycle is incomplete. UNISYS is presently upgrading this documentation.

These deficiencies will be corrected prior to acceptance of the first limited production unit.

NEXRAD FUNDING BREAKDOWN

Mr. **Lehman**. Please update for the record the NEXRAD funding breakdown as shown on pages 601 and 602 of last year's hearing record.

[The information follows:]

(In millions of dollars)

Enroute NEXRAD	Appropriated	Obligated	Units/service
1984	$2.0	$2.0 (1984)	Program Office.
1985	7.5	7.5 (1985)	Prototypes, Program Office, support.
1986	4.3	4.3 (1986)	Prototypes, Program Office, support.
1987	31.9	22.0 (1987)	Prototypes,
		5.7 (1988)	Program Office,
		4.2 (1989)	support.
1988	14.0	4.5 (1988)	Program Office,
		9.5 (1989)	4 units, support.
1989	40.5	23.6 (1989)	Program Office,
		12.3 (1990) E	40 units, support.
		4.6 (1991) E	
1990	5.7	5.7 (1991) E	Program Office, support.
1991	24.7	24.7 (1991) E	Program Office, 33 units, support.
Terminal NEXRAD (offshore):			
1987	80.5	23.4 (1987)	17 units,
		15.2 (1988)	software
		26.4 (1989)	support.
		5.2 (1990) E	
		10.3 (1991) E	
1990	11.7	6.7 (1991) E	Installation, spares, support.
1991	5.0	[1] 5.0 (1991) E	Requested to be reprogrammed to NEXRAD program for spares.

[1] 5.0 to be reprogrammed.

E=Estimated.

NEXRAD CONTRACT SUMMARY

Mr. **Lehman**. Please also update the NEXRAD contract summary as shown on page 602 of last year's hearing record.

[The information follows:]

The NEXRAD production contract consists of 2 phases, limited production and full production. A limited production contract for 10 units was awarded in December 1987. The full production option was exercised in January 1990. The full production funding profile is as follows (in millions of dollars):

	Fiscal year—					
	1990	1991	1992	1993	1994	Total
FAA (including offshore)	54.5	40.6	33.1	14.1	5.7	148.0
All agencies	195.4	168.2	142.8	63.8	27.4	597.6

The funding profile above is changed from last year. Last year's profile only included production costs. This year's profile contains all shared full production activities including production costs, joint system program management, logistics, and facilities.

The FAA agreement with the National Weather Service provides for the FAA to fund 20 percent of the en route NEXRAD production costs, 100 percent of the offshore radar costs, and 33.3 percent of the program management costs.

TERMINAL NEXRAD

[Offshore]

1987	80.5	23.4 (1987)		17 units, software support.
		15.2 (1988)		
		26.4 (1989)		
		5.2 (1990)	E	
		10.3 (1991)	E	
1990	11.7	6.7 (1991)	E	Installation, spares, support
1991	5.0	[1] 5.0 (1991)	E	Requested to be reprogrammed to NEXRAD program for spares.

[1] 5.0 to be reprogrammed.

NEXRAD COST CHANGES

Mr. **Lehman**. Last year, you stated a fiscal year 1991 contract requirement of $32.3 million for this program (page 602). This year, your entire request is only for $24.7 million. Why is there a difference?

Mr. **Pozesky**. No change in overall program cost. The drop was due to a slip in the contract award for the full production contract. The funds will be required in later years.

Mr. **Lehman**. Last year, you stated that the option for full production was to be awarded in September 1989.

This year's justification, however, indicates that the option has not yet been awarded. Have there been delays in contract award and, if so, why?

Mr. **Pozesky**. Yes. The contact was awarded after the justification documentation was put together. The contract was awarded in January 1990. That represented a four-month slip from the original base line, and thus, as I answered in the previous question, that caused the slip of the funding into future years.

FY 1991 NEXRAD PROGRAM DETAILS

Mr. LEHMAN. For the record, please provide a detailed breakdown and discussion of the fiscal year 1991 budget request of $24.7 million for this system.

[The information follows:]

The $24.7 million is broken out as follows:

	Millions
NEXRAD Program Office	$16.6
Regional Support	.2
Support Contract	7.9

The NEXRAD program office funding covers the FAA's share of the NEXRAD program costs (20 percent of equipment, 33.3 percent of program management). The regional costs cover FAA expenses related to installation of NEXRAD displays in air route traffic control centers. Support costs cover FAA Technical Center, FAA Aeronautical Center, and support contractors such as Lincoln Laboratory and the National Center for Atmospheric Research activities in support of NEXRAD.

NEXRAD SITES/COSTS/DELIVERY DATES

Mr. LEHMAN. Please update for the record the NEXRAD location, cost, and delivery date information found on pages 613 to 615 of last year's hearing record.

[The information follows:]

The location and delivery dates for each of the 131 Federal Aviation Administration and National Weather Service NEXRAD units are listed below. The estimated average per unit costs are as follows: NEXRAD Network Unit, $3.2M (total cost to be funded by FAA/USAF/NWS); FAA NEXRAD unit (dual channel), $3.8M. The delivery dates shown for the FAA NEXRAD units (former terminal NEXRAD's) are FAA requested dates but negotiations on these dates are not complete.

NEXRAD SITES AND DELIVERY DATES

1. Operational Support Facility	12/88
2. NWS Training Center	7/90
3. Oklahoma City, OK	7/90
4. Melbourne, FL	12/90
5. Washington, DC	2/91
6. St. Louis, MO	9/91
7. Dodge City, KS	10/91
8. Houston/Galveston, TX	11/91
9. NWS Depot (Former Terminal NEXRAD)	9/91
10. Denver, CO	10/91
11. Kansas City, MO	12/91
12. Wichita, KS	12/91
13. Topeka, KS	1/92
14. San Juan, PR (former terminal NEXRAD)	1/92
15. Tulsa, OK	2/92
16. Goodland, KS	2/92
17. Grand Island, NE	3/92
18. Amarillo, TX	3/92
19. State College, PA	4/92
20. Binghamton, NY	4/92
21. Philadelphia, PA	4/92
22. Charleston, WV	5/92
23. Louisville, KY	5/92
24. Indianapolis, IN	5/92
25. Chicago, IL	5/92
26. Pittsburgh, PA	6/92
27. Detroit, MI	6/92
28. Cleveland, OH	6/92
29. Buffalo, NY	7/92
30. Memphis, TN	7/92
31. Little Rock, AR	7/92
32. Jackson, MS	8/92
33. Slidell, LA	8/92
34. Anchorage, AK (former terminal NEXRAD)	8/92
35. San Francisco, CA	8/92
36. New York, NY	9/92
37. Albany, NY	9/92
38. Boston, MA	9/92
39. Salt Lake City, UT	10/92
40. Portland, ME	10/92
41. Omaha, NE	10/92
42. Des Moines, IA	11/92
43. Annette, AK (former terminal NEXRAD)	11/92
44. Cheyenne, WY	11/92
45. Sioux Falls, SD	12/92
46. Birmingham, AL	12/92
47. Kameula, HI (former terminal NEXRAD)	12/92
48. Atlanta, GA	1/93
49. Miami, FL	1/93
50. Georgetown, Bahamas (former terminal NEXRAD)	1/93
51. Columbia, SC	2/93
52. Raleigh, NC	2/93

53. Cold Bay, AK (former terminal NEXRAD)	2/93
54. Portland, OR	3/93
55. Seattle, WA	3/93
56. Boise, ID	3/93
57. Molokai, HI (former terminal NEXRAD)	3/93
58. Minneapolis, MN	4/93
59. Milwaukee, WI	4/93
60. Bismarck, ND	5/93
61. Grand Turk, BWI (former terminal NEXRAD)	5/93
62. Great Falls, MT	5/93
63. Dallas/Ft. Worth, TX	6/93
64. San Antonio, TX	6/93
65. Fairbanks, AK (former terminal NEXRAD)	6/93
66. Lubbock, TX	7/93
67. Albuquerque, NM	7/93
68. South Kauai, HI (former terminal NEXRAD)	7/93
69. Phoenix, AZ	8/93
70. Reno, NV	8/93
71. Cincinnati, OH	8/93
72. Missoula, MT	9/93
73. Knoxville, TN	9/93
74. Lake Charles, LA	9/93
75. Norfolk, VA	10/93
76. Juneau, AK (former terminal NEXRAD)	10/93
77. Roanoke, VA	10/93
78. Quad Cities, IL	11/93
79. Central IL, IL	11/93
80. Paducah, KY	11/93
81. Grand Rapids, MI	12/93
82. Alpena, MI	12/93
83. Marquette, MI	1/94
84. Shreveport, LA	1/94
85. Nashville, TN	1/94
86. Sacramento, CA	2/94
87. King Salmon, AK (former terminal NEXRAD)	2/94
88. Fresno, CA	2/94
89. Eureka, CA	3/94
90. San Diego, CA	3/94
91. Burlington, VT	3/94
92. Pueblo, CO	4/94
93. Grand Junction, CO	4/94
94. Springfield, MO	4/94
95. Aberdeen, SD	5/94
96. North Platte, NE	5/94
97. Rapid City, SD	6/94
98. Valdez, AK (former terminal NEXRAD)	6/94
99. Lander, WY	6/94
100. Tampa, FL	7/94
101. Mobile, AL	7/94
102. Jacksonville, FL	7/94
103. Wilmington, NC	8/94
104. Tallahassee, FL	8/94
105. Key West, FL	8/94
106. Charleston, SC	9/94

107. Morehead City, NC	9/94
108. Pocatello, ID	9/94
109. Spokane, WA	10/94
110. Pendleton, OR	10/94
111. Medford, OR	11/94
112. Duluth, MN	11/94
113. La Crosse, WI	11/94
114. Fargo, ND	12/94
115. Green Bay, WI	12/94
116. El Paso, TX	12/94
117. Glasgow, MT	1/95
118. Corpus Christi, TX	1/95
119. Brownsville, TX	1/95
120. San Angelo, TX	2/95
121. Odessa/Midland, TX	2/95
122. Billings, MT	2/95
123. Las Vegas, NV	3/95
124. Tucson, AZ	3/95
125. Flagstaff, AZ	3/95
126. Yuma, AZ	3/95
127. Elko, NV	4/95
128. Cedar City, UT	4/95
129. TBD (former terminal NEXRAD)	4/95
130. TBD (former terminal NEXRAD)	4/95
131. TBD (former terminal NEXRAD)	5/95

TERMINAL NEXRAD PROGRAM

Mr. LEHMAN. In a letter dated February 25, 1990, you notified the committee of plans to terminate the terminal NEXRAD program. Why are you terminating it?

Mr. POZESKY. Yes, sir. We are initiating the action to terminate this program.

Mr. LEHMAN. What is going to happen with the weather service? Do they go along with it?

Mr. POZESKY. The terminal NEXRAD was strictly an FAA-only requirement. The terminal NEXRAD was a derivative of the NEXRAD design. So, the FAA modification has been terminated, but we will go on with the NEXRAD program.

Mr. LEHMAN. Why did you terminate it?

Mr. POZESKY. Let me try to explain. The terminal NEXRAD was intended as a gap-filler before the delivery of terminal Doppler weather radar. As you know, the National Weather Service program for NEXRAD has slipped many years.

You asked us last year if we were keeping an eye on how much gap we had between the programs. We answered that we were and as of last year, there was no overlap. But this year, it looked like we would literally get no useful life out of the terminal NEXRAD. Had we had it when we needed it, we would have gotten probably two to three years out of it, but because of the slip in the program, we estimated we would get no useful life. We did a sensitivity analysis and concluded that even if terminal Doppler slipped as much as six or seven months, we still would not get much use out of the terminal NEXRAD.

So, to save money, we took the action to terminate.

TERMINAL NEXRAD PROGRAM COST SAVINGS

Mr. LEHMAN. Your letter describes cost savings of $10 million from the termination. In what appropriation years are those funds located?

[The information follows:]

The cost savings will be realized in FY 1990 ($5 million) and FY 1991 ($5 million). We plan to use FY 1990 funds to provide for other high priority Facilities and Equipment requirements. However, we will request approval prior to using these funds elsewhere. We request that the FY 1991 funds be made available to the NEXRAD program to provide additional spares.

FY 1991 TERMINAL NEXRAD FUNDS

Mr. LEHMAN. How much funding is included in the fiscal year 1991 budget for terminal NEXRAD, and is any of this funding needed for project termination costs, given your current plans?

Mr. POZESKY. $5 million is in the budget. Because this is a cost-plus fixed fee option, there are no termination costs as such, so we won't need funds for that purpose. We would like to keep the funds in the program in case we need some additional spares as part of the NEXRAD program. But we will not need it for terminal NEXRAD.

Mr. LEHMAN. You mean you might be able to give that back?

Mr. POZESKY. Well, if you appropriate it, sir, we might be able to give it back.

Mr. LEHMAN. All right.

SURPLUS TERMINAL NEXRAD FUNDS

Mr. LEHMAN. On page 52, you state that $92 million has been appropriated through fiscal year 1990 for terminal NEXRAD. How much of this amount is available for deobligation, in order to make funds available for other purposes? What is your plan and schedule for doing so, and do you intend to submit a reprogramming request?

[The information follows:]

The funding appropriated for terminal NEXRAD is being used for three activities. These are:

(1) procurement of NEXRAD units to be used initially as terminal NEXRAD's and later as offshore (Alaska, Hawaii, Caribbean) NEXRAD's

(2) Operation of a Doppler Weather Radar test facility in Denver. During the summer months this facility is used operationally to provide wind shear warnings to controllers at the Denver Stapleton Airport.

(3) development of the terminal NEXRAD unique software.

Cancellations of the terminal NEXRAD program will not impact the need for NEXRAD units offshore or the continuing need to operate the Denver test bed.

The current status of the $92M appropriated for terminal NEXRAD is as follows:

$67.8M—has been obligated and is not available for deobligation

$18.6M—will remain in the program to complete the offshore NEXRAD procurement and operate the Denver test bed

$5.6M—is available to be reprogrammed for other projects.

The FAA plans to submit a request for reprogramming the $5.6M before the end of the fiscal year.

TERMINAL NEXRAD PROCUREMENT LESSONS

Mr. LEHMAN. Given what has transpired in the terminal NEXRAD program, would you say that the project was rushed into procurement too quickly? Are there "lessons learned" from this experience?

Mr. POZESKY. Yes.

Mr. LEHMAN. You said last year that the hardware for this program was identical to the standard NEXRAD hardware, and that the software had been successfully tested back in 1988. If these statements were accurate, what caused the schedule slippage which eventually led you to terminate the project?

Mr. POZESKY. No. When we looked at it originally, we said three to four years of useful life out of that system when the decision was made that it was worth the investment and, as you know, as I explained to the National Weather Service, a joint program has slipped, but based upon when the decision was made, we thought we would get a significant useful life from that project.

[Additional information follows:]

The project was not rushed into procurement. We made a conscious decision to tradeoff a small financial risk for a large safety benefit. We used an existing contract for enroute NEXRAD to try to implement weather radar service in the terminal area prior to arrival of Terminal Doppler Weather Radar.

When we looked at it originally, we decided that three to four years of useful life out of that system was worth the investment. As I explained, the National Weather Service joint program has slipped, but based upon when the decision was made, we thought we would get a significant useful life from that project.

Mr. LEHMAN. If you hadn't had that Delta accident in Dallas, you wouldn't have had a terminal NEXRAD program.

Mr. POZESKY. Yes, sir. Let me point out also that the hardware is not wasted. That hardware will be converted and retained as part of the NEXRAD system. So, what was wasted, if you will, has been the development of the software to make it into a terminal device.

We will have the hardware as part of the overall long-term system.

CAUSES FOR TERMINAL NEXRAD CANCELLATION

Mr. LEHMAN. You said last year that the hardware for this program was identical to the standard NEXRAD hardware, and that the software had been successfully tested back in 1988. If these statements were accurate, what caused the schedule slippage which eventually led you to terminate the project?

[The information follows:]

Problems were encountered in the following areas:

Hardware delays in standard NEXRAD

Software algorithms were tested on an FAA test radar but UNISYS had to code the algorithms in the NEXRAD process.

FAA caused some delays due to late delivery of algorithms

UNISYS software coding was substantially behind schedule

TERMINAL NEXRAD TERMINATION LETTER

Mr. LEHMAN. For the record, please provide a copy of the terminal NEXRAD termination letter dated February 26, 1990.

[The information follows:]

U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of the Administrator

800 Independence Ave., S.W.
Washington, D.C. 20591

FEB 26 1990

The Honorable William Lehman
Chairman, Subcommittee on Transportation
Committee on Appropriations
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

The Federal Aviation Administration (FAA) has contracted to provide terminal Doppler weather radars (TDWR) at key airports for the detection and warning of hazardous windshear. In 1987 Congress authorized the FAA to modify the Next Generation Weather Radar (NEXRAD) for installation at 16 airports and one support location to provide an interim capability prior to deployment of the TDWR.

Last year we were questioned about delays in the NEXRAD Program and the possible overlap of the terminal NEXRAD and TDWR Programs. At that time, it appeared there was no overlap and that we would achieve benefit from the terminal NEXRAD systems. In this past year, both the NEXRAD and terminal NEXRAD have been delayed further.

An analysis of the current status of the terminal NEXRAD and the TDWR Programs shows that the delivery schedules for these systems overlap and that there will be little or no useful life for the terminal NEXRAD units. For this reason, we are formally notifying Congress that the FAA plans to terminate the terminal NEXRAD Program.

The fiscal year 1987 appropriations bill directed that the terminal NEXRAD be installed at the following locations:

Washington, D.C.
Miami/Fort Lauderdale, Florida
Dallas/Fort Worth, Texas
St. Louis, Missouri
Houston, Texas
New York, New York
Minneapolis, Minnesota
Newark, New Jersey
FAA Technical Center
  Atlantic City, New Jersey
Chicago, Illinois
Atlanta, Georgia
Denver, Colorado
Tampa, Florida
Orlando, Florida
Pittsburgh, Pennsylvania
Memphis, Tennessee
New Orleans, Louisiana

In 1987 it was anticipated that each of the terminal NEXRAD units would have 2 to 3 years of useful life. Since that time, the terminal NEXRAD schedule slipped, and the TDWR contract award was expedited. Before the decision was made to terminate the terminal NEXRAD Program, we evaluated the progress of the terminal NEXRAD development and generated a best estimate of the delivery schedule. In addition, an independent team audited the progress of TDWR development and determined that the contract delivery dates are realistic. A comparison of the results of these two activities revealed the overlap of the two programs and led to the conclusion that terminal NEXRAD would have little, if any, useful life.

Termination of the terminal NEXRAD Program will not have a large impact on the NEXRAD contractor, since the hardware procurement will not be terminated. The terminal NEXRAD hardware will be delivered as standard NEXRAD units as originally planned and described below:

- Thirteen units will be installed as standard NEXRAD's in Alaska, Hawaii, and the Caribbean.
- One unit will be used at the National Weather Service (NWS) NEXRAD depot for support. (The FAA will share the costs for this unit with the NWS.)
- Three units will be available for procurement by other Government agencies or, as an alternative, will be canceled with an equal value of spare parts procured from the NEXRAD contractor.

The terminal NEXRAD funding was used for the terminal NEXRAD development, field testing, radar hardware procurement, and site selection/procurement. (The TDWR will use the sites procured under the terminal NEXRAD Program.) The savings anticipated by canceling the terminal NEXRAD Program at this time is $10 million, with an estimated cost avoidance of an additional $15 million that would be necessary if the program should mature.

The TDWR delivery sequence will be changed to move the high priority terminal NEXRAD sites to the top of the TDWR list.

By changing the sequence of the TDWR systems and extending the use of our test bed systems an additional year, coverage of thunderstorm seasons will not be lost at any of the original 17 terminal NEXRAD sites.

Identical letters have been sent to the chairmen and ranking members of the FAA's authorizing and appropriating committees.

Sincerely,

J B Busey

James B. Busey
Administrator

TERMINAL DOPPLER WEATHER RADAR CONTRACT

Mr. **Lehman**. You are requesting $83.7 million to procure nine additional TDWR radars. Last year, you reported a two-month slip in the operational date for the first system, from 8/92 to 10/92. This year, there is an additional two-month slip, from 10/92 to 12/92. What is causing the continued schedule problems?

Mr. **Pozesky**. Again, Mr. Chairman, we need to work with the staff. We haven't been able to identify the second two-month slip. Maybe it is in some of the documentation. Let me say generally that this program is still on track. The contractor has an incentive to deliver as much as six months early. He is projecting, and we are projecting an early delivery of this device.

I don't know whether we will make it. There is a financial incentive for the contractor to do that, but generally, the program is still on track. I will work with the staff to try to find the source of that other date.

We haven't been able to track it down.

TDWR DELIVERY/LOCATION

Mr. **Lehman**. When will you have the first one to show us working?

Mr. **Pozesky**. I think it is late 1991.

Mr. **Lehman**. Where?

Mr. **Pozesky**. The first one will go to, I believe, the technical center, but we will certainly have one at the contractor's plant in the Boston area. We have the transmitter up there working right now.

Mr. **Lehman**. At Logan Airport?

Mr. **Pozesky**. No, at Sudbury, right outside of Boston.

Mr. **Lehman**. The first real one?

Mr. **Pozesky**. I don't know, Mr. Chairman, I just can't recall it. I will supply for the record where the first site is. I believe it is somewhere in the Washington area.

Mr. **Lehman**. Philadelphia or Miami wouldn't be bad.

[The information follows:]

The first TDWR will be delivered to the FAA Aeronautical Center in Oklahoma City for testing and training.

The first operational TDWR site is Memphis.

TERMINAL NEXRAD VS. TDWR

Mr. **Lehman**. Would you agree that termination of the terminal NEXRAD program would be a bad decision if there are major slips in the TDWR schedule?

Mr. **Pozesky**. It is hard to be right in this business. We made the decision to terminate based upon the best information we had. We looked at as much as a six-month additional slip in the terminal doppler radar and found no impact on the decision.

In the future—we all may look back as a Monday morning quarterback and find a problem, but we are hopeful that we are on track and that the decision will have turned out to be the right one.

Mr. **Lehman**. What is your assessment of the schedule risk in the TDWR program: low, medium or high; and why?

Mr. **Pozesky**. Confidence is reasonable. I would say this is not a low-risk program, but we are confident that the schedule is good at the moment.

TDWR CONTRACT OPTIONS

Mr. **Lehman**. Should we buy more than the nine TDWRs in 1991?

Mr. **Pozesky**. Well, you know, there is an option capability in the contract to buy more than the 47. We are looking at that. I wouldn't recommend buying any additional until we actually get some hardware and are sure that we really have the hardware that we have contracted for.

But there is the capability in the contract to buy additional units at what looks like a fairly attractive price, if we really do get delivery of the system as we hope.

Mr. **Lehman**. When will the hardware be available?

Mr. **Pozesky**. It will be available in late 1991 for the first unit. That will be delivery, not commissioning. Commissioning will be later.

Mr. **Lehman**. When does the option expire?

Mr. **Pozesky**. It expires in about two years from now. I am fairly sure of that answer. If it is not correct, we will correct it for the record. I think we have about two, two and a half years to pick that up.

[The information follows:]

Options for additional radars must be exercised by the end of October 1991.

TDWR CRITICAL DESIGN REVIEW

Mr. **Lehman**. How many outstanding deficiencies remain from the TDWR Critical Design Review held in November 1989, and when will they be resolved?

[The information follows:]

All action items which resulted from the TDWR Critical Design Review held in November 1989 have been resolved and no outstanding deficiencies remain from that review.

TDWR PRODUCTION STATUS

Mr. **Lehman**. Funds have already been appropriated for 38 TDWR radars. The procurement contract was only signed 17 months ago, in November 1988. What is the manufacturing status of production lots 1 and 2, 18 in fiscal year 1989 and 20 in fiscal year 1990?

Mr. **Pozesky**. Production readiness review has been held with the contractor. Five units have been released for full fabrication, and the remaining have been released for partial fabrication. So, we are making progress.

TDWR MANUFACTURING SCHEDULE

Mr. **Lehman**. What is the estimated manufacturing time in months for a TDWR radar system, from receipt of order to delivery, and how does that change over the life of the production program from learning efficiencies or other factors?

[The information follows:]

Disregarding the development/testing time built into the schedule for the first 47 systems, the manufacturing of the initial TDWR system is 32 months. This decreases to 27 months for later production systems (and options) as a result of learning deficiencies.

TDWR UNIT COST

Mr. **LEHMAN**. What is the estimated unit cost of the TDWR, and how does that change over the life of the production program?

[The information follows:]

The unit cost of the first 47 TDWR systems is $6.7M which includes all program costs (equipment, non-recurring, support equipment, installation, etc.). The contract for these 47 units is a fixed price incentive contract. The contract gives a single price for the entire buy each fiscal year and does not separate non-recurring from equipment costs nor does it show the change in cost due to the learning curve.

The option units are priced individually. Therefore, the unit costs can be determined for these units without consideration of non-recurring/support costs, which are funded under the basic procurement of 47 units. The unit cost for the first option unit (48th system) is estimated to be $4.2M, which includes all items needed to deploy one unit. This includes equipment, site procurement/preparation, installation, and site spares. This cost decreases to $4.0M for the last option unit (102nd system).

TDWR NONRECURRING COSTS

Mr. **LEHMAN**. What is the total estimated nonrecurring cost for TDWR and what percentage of that work has been accomplished by the contractor to date?

Mr. **POZESKY**. Roughly $50 million. Fifty-eight percent has been expended through March of this year.

TDWR DEVELOPMENTAL AND OPERATIONAL TESTING SCHEDULE

Mr. **LEHMAN**. For the record, please provide a detailed developmental and operational testing schedule for the TDWR, and explain which testing thresholds must be met to allow further production commitments to be made.

[The information follows:]

The TDWR full production program for 47 systems is based on NEXRAD development and has been initiated at Key Decision Point 4 as a result of passing that testing threshold during the summer of 1988. Production testing is planned as follows:

1. *Design Qualification Testing (First Article)*. Design Qualification Testing (DQT) are tests which verify that the TDWR system meets specified requirements. This testing includes functional performance, environmental, human factors, maintainability and reliability. Planned completion is October 1992.
2. *FAA, Technical Field Test and Evaluation*. This testing is conducted at the FAA field test site and includes integration (operational interfaces) and shakedown testing. Planned completion is February 1993.
3. *FAA, Key Site Testing*. This testing is conducted at the first TDWR operational site prior to commissioning. Validation of operational test results is accomplished including operational interfaces and shakedown testing. Planned completion is May 1993.

The TDWR contract provides that no production systems will be accepted by the FAA until the testing described above is successfully completed.

TOTAL TDWR COST ELEMENTS

Mr. **LEHMAN**. The TDWR contract covers all R&D, procurement of all 47 radar systems, testing, installation, spares, training, and engineering support. This contract totals $234 million. What activities are left over to account for the additional stated costs of $88.6 million for this program, 28 percent of total costs?

Mr. POZESKY. Basically, they are a series of activities that are not part of the prime contract. The Martin Marietta Corporation has technical responsibility for this as one of the areas. Regional site surveys, land procurement to site the equipment, support at the FAA Technical Center, generators, parts common and some supporting analysis if necessary.

Mr. LEHMAN. And for the record, would you expand on that?

Mr. POZESKY. Okay, I will.

[The information follows:]

The activities not covered in the prime contract include: technical direction by the SEI contractor, site surveys, land procurement, FAA support (FAA Technical Center, regions, and quality assurance), parts common, generators, and engineering support for test bed operations and planned algorithm enhancements.

FY 1991 TDWR BUDGET BREAKDOWN

Mr. LEHMAN. Please provide a detailed breakdown and narrative description of the fiscal year 1991 budget request of $83.7 million. The breakdown should include contract procurement, program management, program support, site acquisition, and other activities. Under contract procurement, provide a sub-element breakdown for nonrecurring costs, spares, training and engineering support.

[The information follows:]

The TDWR FY 1991 budget request is broken down as follows:

	Millions
Contract Procurement:	
TDWR Equipment (Radar Equipment, Displays, Towers, Installation, Technical Data, and non-recurring.) Nonrecurring is estimated to be $10M	$36.8
Spares (Lot)	16.7
Site Preparation	3.4
Training	0.8
Interim Repair and Engineering Support	3.4
Other (Schedule Incentive, misc.)	5.0
Total Contract Procurement	66.1
Program Management (SEI contractor)	1.6
Program Support (Aeronautical Center, Technical Center, Support Contractors, Quality Assurance, and Parts Common and Test Equipment for the Depot.)	9.5
Regional Support	0.5
Site Survey/Acquisition	6.0
Total request	83.7

TDWR SITE COST INCREASES

Mr. LEHMAN. TDWR average site costs are significantly higher in the fiscal year 1991 budget. Those costs are as follows: Fiscal year 1989, $5.9 million; fiscal year 1990, $5.4 million; fiscal year 1991, $9.3 million. Why are costs so much higher in 1991?

Mr. POZESKY. Basically because this program has been taken off of full funding and the 1991 increase pays for spares, training, some land procurement, contractor support and incentive fee for some of the older systems as well.

TDWR IMPLEMENTATION PLAN

Mr. Lehman. For the record, please update the TDWR implementation plan data as shown on pages 618 and 619 of last year's hearing record.

[The information follows:]

TDWR IMPLEMENTATION PLAN
(Dollars in Thousands)

Location	Cost	Delivery Date	Operational Date
1. Aeronautical Center, OK	$6,666	12/91	10/92
2. Memphis, TN	6,666	10/92	6/93
3. Houston (Intercon.), TX	6,666	10/92	6/93
4. Ft. Lauderdale, FL	6,666	3/93	9/93
5. Denver (new airport), CO	6,666	3/93	9/93
6. Atlanta, GA	6,666	3/93	9/93
7. Chicago (O'Hare), IL	6,666	4/93	10/93
8. New York (Kennedy), NY	6,666	4/93	10/93
9. Miami, FL	6,666	4/93	10/93
10. Dallas/Ft. Worth, TX	6,666	5/93	11/93
11. Newark, NJ	6,666	5/93	11/93
12. Orlando, FL	6,666	5/93	11/93
13. St. Louis, MO	6,666	6/93	12/93
14. Pittsburgh, PA	6,666	6/93	12/93
15. Tampa, FL	6,666	6/93	12/93
16. Andrews AFB, MD	6,666	7/93	1/94
17. New Orleans, LA	6,666	7/93	1/94
18. New York (La Guardia), NY	6,666	7/93	1/94
19. Minneapolis, MN	6,666	8/93	2/94
20. Washington (National), VA	6,666	8/93	2/94
21. FAA Technical Center, NJ	6,666	8/93	2/94
22. Detroit, MI	6,666	9/93	3/94
23. Charlotte, NC	6,666	9/93	3/94
24. Houston (Hobby), TX	6,666	9/93	3/94
25. Cincinnati (Covington), KY	6,666	10/93	4/94
26. Kansas City, MO	6,666	10/93	4/94
27. Philadelphia, PA	6,666	10/93	4/94
28. West Palm Beach, FL	6,666	11/93	5/94
29. Phoenix, AZ	6,666	11/93	5/94
30. Dallas (Love), TX	6,666	11/93	5/94
31. Raleigh-Durham, NC	6,666	12/93	6/94
32. Salt Lake City, UT	6,666	12/93	6/94
33. Cleveland, OH	6,666	12/93	6/94
34. Washington (Dulles), VA	6,666	1/94	7/94
35. Louisville, KY	6,666	1/94	7/94
36. Dayton, OH	6,666	1/94	7/94
37. Baltimore, MD	6,666	2/94	8/94
38. Boston, MA	6,666	2/94	8/94
39. Indianapolis, IN	6,666	2/94	8/94
40. Nashville, TN	6,666	3/94	9/94
41. Columbus, OH	6,666	3/94	9/94
42. Tulsa, OK	6,666	3/94	9/94
43. San Juan, PR	6,666	4/94	10/94
44. Milwaukee, WI	6,666	4/94	10/94
45. Oklahoma City, OK	6,666	4/94	10/94
46. Wichita, KS	6,666	5/94	11/94
47. Chicago (Midway), IL	6,666	5/94	11/94

The site funding breaks down as follows:
Fiscal year 1989, 18 sites; Fiscal year 1990, 20 sites; Fiscal year 1991, 9 sites

The changes in site order from last year are due to moving the terminal NEXRAD sites to the top of the list and adjusting the regional workload (no more than 1 site delivered in any region in one month.)

MODE S SCHEDULE DELAYS

Mr. **Lehman**. It would be hard to find a program which has a worse history than Mode S. Schedules have slipped six to seven years compared to the 1983 plan, and one to two years compared to last year. Predictably, costs have also increased. Why should we continue the Mode S program?

Mr. **Pozesky**. Yes, Mr. Chairman. I would like to spend a moment, if I could, talking about this program. Mode S is a central design for part of the NAS equipment. It improves not only surveillance, but the data link coverage.

It is a system that is built into TCAS in the sense that when you buy a TCAS-II, you get a Mode S transponder. It was built for us originally by Lincoln Lab and again by Texas Instruments.

The fundamental design concept remains, I think, unchanged and validated. What we have is a contractor who is having difficulty overcoming problems in delivering the basic design.

Mode S is an important part of where we think the ATC system has evolved, and we think it is clearly necessary for the future ATC system.

MODE S CONTRACT COSTS

Mr. **Lehman**. As we discussed last year, the Mode S contract has a maximum government liability ceiling of $271 million. You stated last year that the price would not change, and that the government would not pay for cost growth above the existing $271 million agreement.

However, we note that the fiscal year 1991 request includes $14.3 million for cost growth under the prime contract. The contractor agreed to assume above-ceiling costs when he signed the contract; is this a bailout?

Mr. **Pozesky**. Mr. Chairman, it is not really a bailout. These are the additional funds required to pay for the program at what is called the ceiling fee. We made an error a couple of years ago. We budgeted for this program at the target fee. The target fee is $231 million. There is a ceiling on the government's liability. It will go to, we estimate, $271 million.

The contractor will have to bear the cost above that and this additional funding is required to take the program from the target price to the ceiling price. The final increment of funds to do that will be required in 1992.

I also would like to enter into the record the fact that I mentioned the other day, that we had just signed a recent contract modification with UNISYS to settle any previous claims, re-base line the system, and get on with this program.

As a result of that, we paid an additional $1.2 million for out-of-scope changes on this program.

MODE S CONTRACT DETAILS

Mr. **Lehman**. For the record, please provide the contract target cost, target profit, target price, share line, ceiling cost, ceiling profit and ceiling price. Also provide a breakdown showing the appropriation year breakdown of cost growth between target and ceiling, should the contract go to the ceiling price.

[The information follows:]

FPI value:		
	a. Target cost	$208,937,930
	b. Target profit	22,886,886
	c. Target price	231,824,816
	d. Final price (ceiling cost)	[1] 247,163,516
	e. Final profit (ceiling profit)	[1] 17,153,048
	Subtotal	[2] 264,316,564
FFP value:		
	Subtotal	8,257,073
	Total price ceiling (Total Government liability)	[2] $272,573,637

Share Line: 15/85 (%)—above and below the Target Cost.

The program office project cost growth for FY90 thru FY93 between the target and ceiling cost to be:

a. Fiscal year 1990	$15,000,325
b. Fiscal year 1991	4,499,077
c. Fiscal year 1992	12,992,346
Total	[1] 32,491,748

[1] This is an *estimated* value only. IAW FAR 16.403-1, upon completion of contractor performance, negotiation and an audit are conducted to determine the final price and final profit.

[2] Includes $1,235,000 appropriated in Contract Modification 0032 dated April 17, 1990.

MODE S CONTRACT TERMINATION PROVISIONS

Mr. LEHMAN. Please also provide a summary of the contract termination provisions and contingent liability under this contract.

[The information follows:]

The contract has a standard Termination for Convenience Clause, FPR 1-8.701, dated August 1977, which provides that the Government may terminate all or any part of the contract whenever the Contracting Officer determines that such termination is in the best interest of the Government. In addition to paying costs incurred for incomplete items and for items already accepted by the Government, other liabilities would include paying the contractor's administrative cost for the termination, claims by subcontractors, and possibly profits. Based on Joint Venture provided information the contractor is in a loss position. Therefore, any payout under the Termination for Convenience would be appropriately reduced to reflect the indicated rate of loss.

The General Provisions "Default Clause" provides that the Contracting Officer can terminate for default if the contractor fails to make delivery, fails to make progress so as to endanger performance, or fails to perform any of the other provisions of the contract.

The Joint Venture has the right to appeal to the U.S. Claims Court or the Department of Transportation Board of Contract Appeals the Government's Termination for Default or the amount paid for a Termination for Convenience.

MODE S CONTRACT

Mr. LEHMAN. Mode S is under a fixed-price contract. Don't the Federal acquisition regulations specify that fixed-price contracts should only be used when risks are reduced to such an extent that realistic estimates of pricing can occur?

Mr. GOLDMAN. The Mode S contract is a fixed-price incentive and a firm fixed-price contract. Although we did contemplate some technical risk with the program, we elected to go with a fixed price incentive contract, because we have done some research and development work earlier on systems such as the discreet address beacon system.

The remaining part of the contract, the firm fixed-price part of the contract is for those items for which we are sure of the prices, such as the dedicated repair service, the equipment buildings, the reprocurement data package, but that is a very small portion of the contract.

Mr. LEHMAN. Furthermore, doesn't the FAR state that fixed-price contracts should be used to minimize the government's liability for future cost growth, and don't we send the wrong signal to industry when we agree not to make them pay for such increased costs?

[The information follows:]

As explained in the previous question, the bulk of the dollars under the Mode S contract are obligated under a Fixed Price Incentive arrangement and a small percentage of the dollars are obligated under a fixed price arrangement. It is true that Fixed-Price and Fixed-Price Incentive contracts are used to minimize the Government's financial liability; the contractor should not be paid additional dollars to accomplish the work which he has contracted to perform. The contractor must absorb all cost growth beyond the Ceiling Price in the contract; this is the limit of the Government's liability. However, the Government is obligated to pay additional dollars for new work no matter what the type of contract may be.

MODE S PROBLEM RESOLUTION

Mr. LEHMAN. According to the GAO, FAA and the Mode S contractor have been unable to agree on an approach to resolve the program's problems. Is this accurate? What are the problems, and why can't you agree?

[The information follows:]

The FAA and the Mode S contractor signed a contract modification on 4/17/90 resolving all outstanding contractual issues. Because of the number and difficulty of the issues it took longer than expected to negotiate.

MODE S PROGRESS PAYMENTS

Mr. LEHMAN. You have paid $145 million in progress payments thus far without receiving even the first system. Don't you have the authority to withhold progress payments until they show a little progress? Why don't you use that authority.

Mr. GOLDMAN. The progress payment clause does have the authority to withhold progress payments, and the contractor has failed to make progress on the parts of the contract which were yet to be delivered. In fact, we did withhold progress payments last year. We started withholding them in July of '89 through November of '89. Then we again withheld them during January of 1990.

As Mr. Pozesky said, we have renegotiated the contract with UNISYS and we have restored the progress payments at this point in time. However, we are going to watch their progress very carefully and make some decisions in the near term as to how it should continue.

MODE S PRIME CONTRACTOR ASSETS

Mr. LEHMAN. Is there any doubt in your mind that the prime contractor (UNISYS and Westinghouse) has the financial assets to carry this program until they can demonstrate better performance?

[The information follows:]

Based on Dunn and Bradstreet reports there is no question that each company separately has the financial assets to carry out the program until they can demonstrate better performance. They appear to have the finances to absorb any overrun.

ADDITIONAL MODE S SYSTEMS

Mr. **Lehman**. Last year, you announced a requirement for an additional 100 Mode S systems. The total cost for these systems was estimated at $1.2 billion. How did you reach this conclusion when you can't get any of the first 137 systems to work?

Mr. **Pozesky**. I would like to spend a moment on this answer. Last year I believe that the tenor of the item that we gave on this requirement was what I would call tentative. It is a complex issue and I think the words were that we recognized it. We had to display the justification to the Congress and the Administration before we went on.

This was an issue that GAO testified on a couple of days ago that we ought not to be allowed to do. The Administrator testified that he had not made the decision to do it. I want to reiterate that it is a projection. We have not made the final decision to do it. We will be doing lots of analysis back in the office to make that decision.

But at the same time, I don't want to sound too defensive or too negative. This is a complex issue. There are system reasons why we may want to go ahead with an all Mode S requirement—traffic growth, surveillance, and the need for data link coverage—and we just need to go through that analysis and bring that case before you and the Administration. It may be a very real requirement. We haven't completed our final analysis yet.

MODE S REQUIREMENTS ANALYSIS

Mr. **Lehman**. Although analyzing requirements is fundamental to making prudent investment decisions, GAO has pointed out that FAA did not establish providing data communications at lower altitudes is economically or operationally justified. Doesn't FAA normally evaluate such benefits when determining the airspace in which ATC services should be provided? Why wasn't this done in this case?

[The information follows:]

The requirements for additional Mode S systems was predicated on providing full *surveillance* (not data communications) coverage at all operationally required altitudes.

Data communications is operationally necessary to reduce voice communications congestion, particularly at the lower altitudes where aircraft density is greatest and growing; it also supports automated enroute air traffic control. When assessing data communications requirements, it is necessary to consider the operational impact of discontinuities in coverage.

The provision of data link capability via Mode S represents only a small incremental cost for the ground equipment and provides an inherent cost advantage for the airborne equipment since the transponder is already required for the surveillance function.

FAA intends to complete a detailed analysis of requirements, alternatives, costs and benefits prior to proceeding with the acquisition of additional Mode S systems.

Mr. **Lehman**. The lack of a requirements analysis is also inconsistent with assurances FAA officials provided to this subcommittee during February 1987 testimony. At that time, an FAA official conceded that requirements changes had contributed to cost growth and delays on other major systems and noted that a rigid process has been instituted to properly justify future requirements changes. What happened to that process in this case, and again, what credibility can we place in your assurances that requirements are being controlled?

[The information follows:]

As indicated in prior testimony, FAA has a process in place to control requirements changes. Mode S, however, has not changed its requirements.

MODE S ALTERNATIVE ANALYSIS

Mr. LEHMAN. According to GAO, FAA did not properly evaluate a full range of alternatives before deciding to buy additional MODE S systems. Last year, we asked you for a copy of the analysis supporting the $1.2 billion decision, and pages 687 and 688 of last year's hearing contain the response. That response is shown below. If this reflects the depth of analysis FAA requires before deciding to spend over a billion dollars, GAO's criticisms seem entirely understandable. Do you consider those two pages in our hearings to be responsive to our request, and adequate to commit to spending over $1 billion?

[The summary follows:]

Summary

Summary of mode S analysis results		Do-nothing	Monopulse	Monopulse w/ dscrt add	Mode S/data link * * *
Alternatives considered:					
Do nothing	F&E Cost	$5.2M * *	$533M	$694M	$789M.*
Satellites	Life Cycle Cost * * * *	$3307M	$1927M	$2,215M	$2,390M.*
Monopulse Beacon System.	Cost Risk	High	Low	Low	Low.
Monopulse Beacon System with Discrete Addressing.	Schedule Risk	N/A	Low	Low	Low.
Mode S With Built in data link.	Meets Sys Reqts (NASSRS).	No	No	No	Yes.
Mode S with independent data link.	Technical Risk	N/A	Low	Low	Low.
Satellites (cooperative surveillance)—Not available until next century.	Operational Performance				
	ATC Operations	No	No	No	Yes.
	Additional D/L Coverage.	No	No	No	Yes.
	Enhanced Safety	No	No	No	Yes.
	Suprts User Equipage	No	No	Yes	Yes.
	Suprts Air Trvl Growth	No	No	No	Yes.
	Controller Productivity	No	No	No	Yes.

Mr. POZESKY. No, in retrospect, it was not responsive. Had we better understood the committee's intent behind last year's question, we would have provided the full study from which the summary chart was extracted. The full study is submitted for the record. However, the requirement for 199 additional Mode S systems was for planning purposes only. While there remains a requirement to replace aging beacon equipment, no decision has been made to procure additional Mode S systems. An acquisition decision for beacon replacements will be accomplished according to DOT procedures supported by cost/benefit and alternative analysis.

ADDITIONAL MODE S SYSTEMS

Mr. LEHMAN. Last year, you stated that FAA had decided to acquire these additional systems, with a projected contract award date of July 1991. Can you explain why this year's budget request still does not reflect that decision, and when such funding will be requested?

[The information follows:]

As noted in the question, while we tentatively decided to procure additional Mode S systems, we have not formally committed to this procurement by requesting funding and procurement authority. In view of the development problems experienced in the first procurement and funding requirements of other NAS programs, it was decided to defer award of the next beacon procurement to allow further analysis of requirements, alternatives, costs, and benefits.

MODE S ALTERNATIVES

Mr. LEHMAN. According to the GAO, the FAA is planning a benefit/cost analysis for additional procurement of Mode S. They say that this analysis will not look at the benefits of alternative systems to MODE S, which could provide similar capability, such as satellites. Is this accurate, and if so, why?

[The information follows:]

The FAA will conduct a complete analysis of requirements, alternatives, costs, and benefits, in association with the procurement of replacements for the remaining radar beacon systems.

Mr. LEHMAN. Your FY 1989 estimate for the 60 Mode S systems to be procured in future years was $190 million. In FY 1990, that estimate was $134 million. In FY 1991, it is $126 million. Yet the program continues to experience schedule delays and technical difficulties—a situation usually associated with cost increases. How much credibility can we place in your cost estimating process when we see such inconsistencies?

Mr. POZESKY. Well, as is always the case when you go back and look at these numbers, the basis on which we made these statements was different. I will tell you what the bases are and we will try to be consistent. One hundred ninety million dollars represented a redevelopment—if we had to go fully competitive for the systems. The $134 million was our estimate if we went sole source to the people currently building them and we would not have to pay for any additional development cost. The $126 million estimate was a pro rata share of an overall 200 system buy for which I indicated no decision has been made.

So again, the track record is confused. The basis for all these estimates were different, and we will try to be more sensitive to that in the future.

MODE S GROUND LOCATIONS

Mr. LEHMAN. For the record, please update the MODE S ground location schedule data shown on pages 693-696 of last year's hearing record.

[The information follows:]

Schedule Change
April 16, 1990

SYS NO.	Site Name	LID	MOD 32 Date	Old Date
1	FAATC	ACYT	08/02/91	08/09/90
2	FAATC	ACYT	02/07/92	02/20/91
3	AERONAUTICAL CENTER	OEX	05/29/92	05/02/91
4	BALTIMORE	BAL	03/06/92	03/15/91
5	FAA DEPOT	DEP	10/23/92	07/12/91
6	RALEIGH/DURHAM	RDU	11/13/92	11/29/91
7	DALLAS	ADS	11/13/92	11/29/91
8	CHARLESTON	CHS	12/11/92	12/31/91
9	HOUSTON	IAH	12/11/92	12/31/91
10	SEATTLE	SEA	12/11/92	12/31/91
11	JACKSONVILLE	JAX	01/29/93	01/31/92
12	BOSSIER CITY/SHREVPT	BAD	01/29/93	01/31/92
13	PORTLAND	PDX	01/29/93	01/31/92
14	ORLANDO	MCO	02/26/93	02/28/92
15	LITTLE ROCK	LIT	02/26/93	02/28/92
16	OAKLAND	OAK	02/26/93	02/28/92
17	FRESNO	FAT	02/26/93	02/28/92
18	FORT LAUDERDALE	FLL	03/31/93	03/31/92
19	SPRINGFIELD	SGF	03/31/93	03/31/92
20	SAINT LOUIS	STL	03/31/93	03/31/92
21	LOS ANGELES-2	LAX	03/31/93	03/31/92
22	TALLAHASSEE	TLH	04/30/93	04/30/92
23	BIRMINGHAM	BHM	04/30/93	04/30/92
24	INDIANAPOLIS	IND	04/30/93	04/30/92
25	PHOENIX	PHX	04/30/93	04/30/92
26	MEMPHIS	MEM	05/31/93	05/29/92
27	COLUMBUS	CMH	05/31/93	05/29/92
28	DETROIT	DTW	05/31/93	05/29/92
29	ALBUQUERQUE	ABQ	05/31/93	05/29/92
30	NEW YORK	JFK	06/30/93	06/29/92
31	CHICAGO	ORD	06/30/93	06/29/92
32	DENVER	DEN	06/30/93	06/29/92
33	SALT LAKE CITY-9	SLC	06/30/93	06/29/92
34	ALBANY	ALB	07/30/93	07/29/92
35	WINDSOR LOCKS	BDL	07/30/93	07/29/92
36	GREEN BAY	GRB	07/30/93	07/29/92
37	ROCK SPRINGS	RKS	07/30/93	07/29/92
38	NORTH KINGSTOWN/PROVIDENCE	OQU	08/31/93	08/30/92
39	MINNEAPOLIS	MSP	08/31/93	08/30/92
40	DULUTH	DLH	08/31/93	08/30/92
41	LUSK	LSK	08/31/93	08/30/92
42	BOSTON	BOS	09/30/93	09/29/92
43	BANGOR	BGR	09/30/93	09/29/92
44	FARGO	FAR	09/30/93	09/29/92
45	LOVELL	QSI	09/30/93	09/29/92
46	SAINT ALBANS	QSA	10/29/93	10/29/92
47	WICHITA/MCCNLL	ICT	10/29/93	10/29/92
48	BILLINGS	BIL	10/29/93	10/29/92
49	GREAT FALLS	GTF	10/29/93	10/29/92
50	WASHINGTON	DCA	11/30/93	11/30/92

52	FORT SMITH	FSM	11/30/93	11/30/92
53	SPOKANE	GEG	11/30/93	11/30/92
54	CAMP SPRINGS/ANDREWS	ADW	12/31/93	12/29/92
55	OKLAHOMA CITY	OKC	12/31/93	12/29/92
56	LOS ANGELES-1	LAX	12/31/93	12/29/92
57	LONG BEACH	LGB	12/31/93	12/29/92
58	WASHINGTON	IAD	01/31/94	01/29/93
59	ROANOKE	ROA	01/31/94	01/29/93
60	COLLEYVILLE	QZB	01/31/94	01/29/93
61	SANTA BARBARA	SBA	01/31/94	01/29/93
62	NORFOLK	ORF	02/28/94	02/26/93
63	LAKE CHARLES	LCH	02/28/94	02/26/93
64	NEW ORLEANS	MSY	02/28/94	02/26/93
65	BURBANK	BUR	02/22/94	02/26/93
66	HAMPTON/LGLY AFB	LFI	03/31/94	03/29/93
67	GRAND RAPIDS	GRR	03/31/94	03/29/93
68	ONTARIO	ONT	03/31/94	03/29/93
69	SANTA ANA/EL TORO	NZJ	03/31/94	03/29/93
70	WILMINGTON	ILM	04/29/94	04/29/93
71	CHARLOTTE	CLT	04/29/94	04/29/93
72	MILWAUKEE	MKE	04/29/94	04/29/93
73	SAN DIEGO/MIR	NKX	04/29/94	04/29/93
74	SYRACUSE	SYR	05/31/94	05/31/93
75	STERLING/TNLYPK	QXM	05/31/94	05/31/93
76	CEDAR RAPIDS	CID	05/31/94	05/31/93
77	SACRAMENTO/MCLLND	MCC	05/31/94	05/31/93
78	ROCHESTER	ROC	06/30/94	06/29/93
79	DES MOINES	DSM	06/30/94	06/29/93
80	MARYSVILLE/BEALE	BAB	06/30/94	06/29/93
81	RED BLUFF	RBL	06/30/94	06/29/93
82	BUFFALO	BUF	07/29/94	07/29/93
83	PITTSBURGH	PIT	07/29/94	07/29/93
84	KANSAS CITY	MCI	07/29/94	07/29/93
85	KLAMATH FALLS/KENO	LMT	07/29/94	07/29/93
86	HARRISBURG	HAR	08/31/94	08/30/93
87	OMAHA	OFF	08/31/94	08/30/93
88	NORTH PLATTE	LBF	08/31/94	08/30/93
89	BOI-CASCADE	QCK	08/31/94	08/30/93
90	NEWARK	EWR	09/30/94	09/29/93
91	ROCKVILLE	QJM	09/30/94	09/29/93
92	ASHTON	QVA	09/30/94	09/29/93
93	SALT LAKE CITY/FRAN PK-1	SLC	09/30/94	09/29/93
94	PHILADELPHIA	PHL	10/31/94	10/29/93
95	ISLIP	ISP	10/31/94	10/29/93
96	CORPUS CHRISTI	CRP	10/31/94	10/29/93
97	ANGLE PEAK	QAS	10/31/94	10/29/93
98	WHITE PLAINS	HPN	11/30/94	11/29/93
99	HOUSTON/HOBBY	HOU	11/30/94	11/29/93
100	SAN ANTONIO	SAT	11/30/94	11/29/93
101	LAS VEGAS	LAS	11/30/94	11/29/93
102	MIAMI	MIA	12/30/94	12/29/93
103	AUSTIN/BRGSTRM	AUS	12/30/94	12/29/93
104	TUCSON/DAVIS MON	TUS	12/30/94	12/29/93
105	EL PASO/BIGGS	ELP	12/30/94	12/29/93
106	SARASOTA/BRADENTON	SRQ	01/31/95	01/31/94
107	TAMPA	TPA	01/31/95	01/31/94
108	ABILENE/DYESS	DYS	01/31/95	01/31/94

110	CECIL FIELD	NZC	02/28/95	02/28/94
111	MIDLAND	MAF	02/28/95	02/28/94
112	AMARILLO	AMA	02/28/95	02/28/94
113	TRINIDAD	TAD	02/28/95	02/28/94
114	PENSACOLA	PNS	03/31/95	03/29/94
115	GARDEN CITY	GCK	03/31/95	03/29/94
116	PARKER	QPK	03/31/95	03/29/94
117	GRAND JUNCTION	GJT	03/31/95	03/29/94
118	JACKSON	JAN	04/28/95	04/29/94
119	TYLER/CHNDLR	QJC	04/28/95	04/29/94
120	GETTYSBURG	QJB	04/28/95	04/29/94
121	CEDAR CITY	CDC	04/28/95	04/29/94
122	WARNER ROBBINS/MACON	WRB	05/31/95	05/30/94
123	ATLANTA	ATL	05/31/95	05/30/94
124	BISMARCK	BIS	05/31/95	05/30/94
125	GALLUP	GUP	05/31/95	05/30/94
126	MARIETTA/DOBBINS	MGE	06/30/95	06/29/94
127	EVANSVILLE	EVV	06/30/95	06/29/94
128	DAYTON	DAY	06/30/95	06/29/94
129	TONOPAH	TPH	06/30/95	06/29/94
130	NASHVILLE	BNA	07/28/95	07/29/94
131	CLEVELAND	CLE	07/28/95	07/29/94
132	FALLON	FLX	07/28/95	07/29/94
133	BATTLE MOUNTAIN	BAM	07/28/95	07/29/94
134	LOUISVILLE	SDF	08/31/95	08/29/94
135	BRISTOL/JOHNSON/KINGSPORT	TRI	08/31/95	08/29/94
136	COVINGTON/CINCINNATI	CVG	08/31/95	08/29/94
137	MOFFETT/SAN JOSE	NUQ	08/31/95	08/29/94

FY 1990 MODE S FUNDING

Mr. LEHMAN. How much funding was budgeted in fiscal year 1990 to initiate planning for the follow-on buy of 60 systems originally planned for July 1991 and how does FAA plan to utilize that funding given the slip in the follow-on buy?

[The information follows:]

In FY 1990, the Program Office utilized approximately $360,000 for consultant services to plan for the follow-on procurement of 60 systems. Given the slip in the planned ATCRBS replacement procurement and the merging of the 60-lot Mode S buy with this procurement, no activity on the follow-on buy is planned for FY 1991. There are no funds identified for the follow-on procurement in FY 1991 budget.

TERMINAL RADAR FACILITY IMPROVEMENTS

Mr. LEHMAN. For the record, please provide a breakdown of the $5.9 million requested for the terminal radar system, similar to the information provided last year on pages 698 and 699 of the hearing record.

[The information follows:]

A. Provide Terminal Radar In-service Engineering for various locations $1,900,000.

B. Improve ASR at two locations for a total of $1,294,709. CD-2 will be provided to increase beacon coverage at St. Thomas, VI. This will provide the San Juan CERAP with long range radar overlap redundance if the Navy owned Pico del Este system fails. Video and control cables will be replaced at Ft. Smith, AK ASR due to water damage through defective splices.

C. Replace Video Mappers at 8 locations for a total of $875,210.

Chicago, ORD, IL.
Peoria, IL.
Indianapolis, IN.
Flint, MI.
Lansing, MI.
Rochester, MN.
Sioux Falls, SD.
Green Bay, WI.

The existing equipment at these locations is fifteen to twenty years old and is near the end of its operational life and consequently experiencing complete service outages.

D. Establish Radar Remoting to Satellite Towers at Boston, MA $692,517. The Manchester NH to Boston radar link will be lost when RCL replaces RML. Installation of a television microwave link (TML) will ensure that the full capabilities of the DBRITE equipment now scheduled to meet this requirement can be used.

E. Establish Flight Data Entry & Printout (FDIO) at 6 locations for a total of $237,564. This will allow direct access to the Offshore Computer System (OCS), improving the transfer of air traffic control and flight plan movement information between the Anchorage ARTCC and the following satellite ATC/radar facilities:

Bethel ATCT, AK.
Galena ATCT, AK.
Galena RAPCON, AK.
King Salmon ATCT, AK.
King Salmon RAPCON, AK.
Kodiak ATCT, AK.

F. Provide video maps to support Brite radar indicator tower equipment for $640,000, and MSAW graphics in support of ARTS II for $260,000.

AIRPORT SURVEILLANCE RADAR PROGRAM

Mr. LEHMAN. Please provide a breakdown of the fiscal year 1991 request for each of the four existing ASR sites, ASR improvements, relocations/leapfrogging, and replacement of analog radars. Describe the work to be performed under each of those activities.

[The information follows:]

The $47 million is required to complete the following actions:

$31.5 million—Continue installation of four ASR establishments at Nantucket, Missoula, Gainsville, and Charlottesville.

$868.6 thousand—Complete ASR tower raise projects required to enhance radar coverage.

$13.0 million—Continue the site preparation and construction required to leapfrog 12 ASR-7/8 radar systems.

$2.0 million—Terminal radar systems engineering.

ASR FUNDING INCREASES

Mr. LEHMAN. You are requesting a very large increase in this program, from $9.9 million to $47 million. What accounts for this increase and why is it needed?

Mr. POZESKY. There are four areas where this increase is needed. About $31.5 million is for the radar establishments at Nantucket, Missoula, Gainsville, and Charlottesville. These programs have been off full funding and funds are required for the radar, the TRACON, the communications, and all of the facilities necessary to really establish a radar facility.

Thirteen million dollars is to continue the site preparation for the Leap Frog program, about $860,000 to complete a tower project to enhance radar coverage and roughly $2 million for radar systems engineering.

ASR IMPLEMENTATION DELAYS

Mr. LEHMAN. According to GAO data, the radar delivered to the first site did not meet hardware or software specifications, resulting in a delay in first implementation of 306 days since last year's estimate. What were these problems, and have they all been fixed, and who paid for the fixes?

Mr. POZESKY. The problem was that the radar as delivered didn't meet all of the specification requirements. We found that out in the field testing. There was, let me call it additional tweaking, that was necessary to meet the requirements. It was something that you really can't write a specification for because it would be one of foreseeing the future. So we went through that process with the contractor.

We developed the procedures for the shakedown and site optimization. These and other contractor claims were recently settled by the FAA for about $14 million. If that is not a precise estimate, I will give you the precise estimate for the record. Fourteen million dollars was the number that we settled the claims with the contractor for this and other related actions associated with this program.

[The information follows:]

We have reconfirmed the estimate of fourteen million dollars to settle the claim with the ASR-9 contractor, and it is correct.

Mr. LEHMAN. First implementation has been delayed almost 18 months since last year. How does that affect your fiscal year 1991 budget request?

[The information follows:]

This delay has no effect on the fiscal year 1991 budget request since these funds are needed for continuation of the program and the four facilities will be completed during fiscal year 1992.

ASR ESTABLISHMENT CRITERIA

Mr. **LEHMAN**. Your budget states that outyear requirements "are based on activity levels and local situations which are validated on a year to year basis." What does this mean? Why can't you plan for future investments of this system?

Mr. **POLLARD**. Our criteria is in two phases:

Phase I is the air traffic criteria that is easy to predict and count. Each time one of those sites qualifies from an air traffic activity standpoint it is submitted for validation. If they are validated in one year they are submitted in subsequent years.

ASR CONTRACT

Mr. **LEHMAN**. Is this being procured under another fixed price contract?

[The information follows:]

This is being procured under the existing FAA ASR-9 contract.

Mr. **LEHMAN**. For the record, please provide details of that contract, including target, ceiling, and share line data and ECPs or modifications issued to date.

[The information follows:]

The ASR-9 contract is a firm fixed-price contract that was awarded in September 1983 for $135,573,166. This type of contract does not have a target, ceiling, nor share line data. The first five modifications were awarded to exercise options to the contract. There has been 54 modifications to date which has increased the contract cost to $499,489,509.

A breakdown of the contract modifications is as follows:

Major modifications:			
Mod 07	12/84	$77,944,619	25 systems.
Mod 15	02/86	81,640,791	26 systems.
Mod 21	12/86	77,007,274	24 systems.
Mod 52	12/89	74,745,389	14 systems, RFEA settlement.
Total		$311,338,073	
All other largest contract modifications:			
Mod 09	3/85	$4,400,276	1 system.
Mod 22	3/87	8,470,806	3 systems.
Mod 40	3/89	7,100,000	spare parts peculiar.
Mod 54	4/90	4,376,000	2 systems; 2 dual remote.
Total		$24,347,082	
All other technical modifications			$163,804,354
Total contract cost			499,489,509

ASR CONTRACTOR CLAIMS

Mr. **LEHMAN**. Are you saying they didn't meet specifications and yet you are paying the $14 million?

Mr. **Pozesky**. The claims were settled on the basis that the problems that they encountered were not covered in the government specifications or in the contractor design. It was one of those things where it is just impossible to write a perfect specification. These areas were not detailed. It was the government's position that the contractor should have known. It was the contractor's position that the government should have anticipated, and we negotiated and settled it across a negotiation table for that price.

Mr. **Lehman**. Was this a solid fixed price contract?

Mr. **Pozesky**. I believe so. The ASR-9 was a fixed price contract.

ASR SITE COST GROWTH

Mr. **Lehman**. On page 54, you are requesting $6 million for unanticipated cost growth in regional implementation activities. Why have the costs grown, and why weren't they predicted earlier?

Mr. **Pozesky**. All of these costs, sir, are associated with structural modifications to the facilities to mount these radars. We had to do things like strengthen the roofs on some of our towers to accommodate the antenna pedestals. We underestimated the weight and wind loading associated with this program, and we had to beef up the facilities to account for it.

AIRPORT SURFACE DETECTION EQUIPMENT PROGRAM

Mr. **Lehman**. Will funds be needed beyond fiscal year 1991 to complete installation of all ASDE-3 radars?

[The information follows:]

The installation of the last ASDE-3 system is scheduled to be completed by July 1992. No additional funds are required beyond fiscal year 1991 to meet current program installation requirements.

Mr. **Lehman**. Funds have been appropriated in prior years for 29 ASDE-3 radar systems. Is it true that the first one was installed only in February 1990? Does this represent a significant delay in the program, and if so, what is causing the delay?

Mr. **Pozesky**. Yes sir, we have had a delay. Roughly 27 months delay behind the original contract. We have gotten the first system. Delays were caused by contractor difficulties associated with the hardware and the software. The program cost has grown by about $11 million mostly due to regional costs associated with FAA's preparation, part of which is what I answered previously. The cost for the contract has not grown.

ASDE-3 LOCATIONS/COSTS

Mr. **Lehman**. For the record, please provide a current implementation schedule for each of the ASDE-3 radar locations, and their associated cost.

[The information follows:]

ASDE-3 RADARS

Site location	Implementation date
Pittsburgh	Dec. 31, 1990.
FAA Academy [1]	([3])
Denver (Stapleton) [2]	Apr. 30, 1991.

ASDE-3 RADARS—Continued

Site location	Implementation date
Denver (DVX) [2]	June 30, 1992.
Dallas/Ft. Worth	May 31, 1991.
Philadelphia	Do.
Los Angeles [2]	June 30, 1991.
Los Angeles [2]	Do.
Chicago	Do.
Atlanta	July 31, 1991.
San Francisco	Do.
Boston	Aug. 31, 1991.
Newark	Do.
Baltimore	Sept. 30, 1991.
Cleveland	Do.
Seattle	Oct. 31, 1991.
Portland	Do.
Dulles	Nov. 30, 1991.
Andrews AFB	Do.
Miami	Dec. 31, 1991.
New York-La Guardia	Do.
St. Louis	Jan. 31, 1992.
Houston [2]	Do.
Houston [2]	July 31, 1992.
Washington National	Feb. 28, 1992.
Memphis	Do.
Minneapolis	Mar. 31, 1992.
Detroit	Do.
Tampa	Apr. 30, 1992
New York-Kennedy	Do.
New Orleans	May 31, 1992
Kansas City	Do.
Anchorage	June 30, 1992.

[1] FAA Training/Field Support/Depot Support Facility.
[2] Dual sensor facilities.
[3] Not available.

The total program cost for the 33 sites is $130.5 million, or an average cost of approximately $4.0 million per site.

ASDE-3 INSTALLATION CRITERIA

Mr. LEHMAN. Some in the air industry feel that ASDE-3 radars should be installed at all airports where very low visibility category III operations take place. What is your view of that approach, and how many airports would fit that criterion?

[The information follows:]

We support the need to provide ASDE-3 equipment at airports where Category III ILS operations are authorized. Currently, 35 airports are authorized Category III operations.

ASDE-3 MODIFICATION KIT FOR RUNWAY INCURSIONS

Mr. LEHMAN. At a recent hearing before another congressional committee, FAA announced plans to evaluate and procure a modification kit for the ASDE-3 radar which would provide automatic alerting of potential runway incursions. What are your plans, and why is an accelerated schedule necessary?

Mr. POZESKY. Mr. Chairman, this is a part of our R&D. The contractor involved—Norden—has proposed that with an additional computer, an important safety benefit can be provided to the FAA for runway incursion alerting. We have entered the process of going out with an RFP for that. It is a new need that has come up from the R&D viewpoint. We have a schedule. I will be happy to enter it into the record. It goes from July '90 through '92.

[The information follows:]

The schedule for the runway incursion alerting modification kit for the ASDE-3 radar is as follows:

Contract award for preproduction unit, July 1990; begin evaluation, November 1990; complete evaluation, September 1991; exercise production phase, October 1991; first installation, 1992.

Mr. POZESKY. But I would point out that July '90 through—the first installation in 1992—is a research and development contract, and I don't think it is reasonable to have very high confidence in those schedules at the moment.

PARALLEL SITUATION—ASDE-3 VS. TERMINAL NEXRAD

Mr. LEHMAN. Don't you have a parallel situation with NEXRAD here, where you have a problem of publicity? You fund the program and then you have technical problems, and then you phase it out?

Mr. POZESKY. No. The terminal NEXRAD was always going to be an interim system until we got something better. What the runway incursion device seems to be is the something better, if you will. It is a development program for a long term solution. So it isn't quite a parallel. If it works, we will buy it. If it doesn't work, we will try to go in a different direction. It is a research exploratory thing.

ASDE-3 FUNDING

Mr. LEHMAN. How much funding do you need in 1990 and 1991?

Mr. POZESKY. I believe in the R&D area——

Mr. LEHMAN. And where will you get the money?

Mr. POZESKY. The original program will be coming out of the R&D program. There may be a requirement for as much as $6 to $7 million in '91 or—probably in '92 if it works. If it works—and we won't know until we test it—it is possible that we may come in for a reprogramming for F&E funds. We may have to wait six or seven months to see where we are.

Mr. LEHMAN. Do you intend to submit a reprogramming request for this new activity, and if not, why not?

[The information follows:]

We are currently working out the approximate financial split between R&D and F&E funding. After we complete the analysis, we will be in a better position to know if we need a reprogramming request.

ASDE-3 MODIFICATION KIT RISK

Mr. LEHMAN. The FAA official at that hearing stated that "this approach does entail some risk. There are technological and operational issues that remain to be resolved." What are these risks, and how do you intend to resolve them prior to awarding the production contract?

Mr. POZESKY. Basically, very precisely locating the aircraft is a technical problem and getting a computer sophisticated enough to do that is one of the risks.

Another important risk is the operational risk associated with the so-called "cry wolf" problem. If this device alerts the controller too frequently of a potential problem then that will be looked at as a box which "cries wolf" too often and won't be of any use to the controller.

Mr. **Lehman**. Did you give us the amount of money you expect to request?

Mr. **Pozesky**. Well, I indicated that the F&E cost over FY 1991 and FY 1992 could be as much as $6 to $7 million.

Mr. **Lehman**. For reprogramming purposes?

Mr. **Pozesky**. We have not made the decision to even request that, because at the moment, the test hasn't even started. We don't know if it is going to be a success.

ASDE-3 PROGRAM DETAILS

Mr. **Lehman**. Please expand on your answers for the record, and include a discussion of the measurable benefits of the proposed modification, the program's schedule and total cost, and the acquisition strategy.

[The information follows:]

The technological and operational risks are identified below, along with our plans for resolving them:

The centroiding, tracking and safety algorithms may not support the proposed automation functions in an operationally acceptable manner. In order to mitigate the occurrence of this, we are going to build a preproduction unit to evaluate. We are also going to build all of the software to evaluate. We will then test all of the interfaces prior to production award, which includes the ASDE-3 and ARTS interfaces.

We will operationally test, using air traffic personnel in the field, both the prototype and preproduction units. What we learn from testing the prototype will be incorporated into completing the build of the preproduction unit, we will award the production phase of the contract.

Measurable benefits from this program will be realized by the decrease in runway incursions. Data to support this will be collected and analyzed on a continuing basis to further refine the algorithms.

The schedule we are working to is as follows:

July 1990—contract with Norden for a preproduction unit in the form of a kit to be used with the ASDE-3.

November 1990—start evaluation of the preproduction unit using a controller team to determine operational feasibility.

September 1991—complete the evaluation.

October 1991—exercise production phase if the evaluation is successful.

1991—install first production system.

Total cost of this program, including both phases, is estimated to be $35 million.

RUNWAY INCURSION HAZARD

Mr. **Lehman**. An NTSB representative at that hearing stated the following:

> The Safety Board believes that the runway incursion hazard will continue to grow as the number of operations at existing airports increase * * * . The Board has been concerned that the major programs of both the NAS Plan and the FAA Plan for Research, Engineering and Development focus on increasing the capacity of the ATC system and increasing the acceptance rate of existing airports. The plans give only limited attention to the hazard of collision on the airport surface.

Can you comment on the NTSB's concern?

Mr. **Pozesky**. Well, they are certainly not all wrong. The problem which they have identified is a severe problem. Potentially an important safety problem. We are looking at several things from a technical side to try to deal with it. One is the ASDE program, which the committee has funded. The other is the runway incursion device. We also have an R&D program which we call ASTA—airport surface traffic automation—which is funded in this year's budget to look at technical ways that you can avoid collisions and alert the controllers to ground operational problems.

Mr. LEHMAN. Please expand on your answer for the record.

[The information follows:]

We believe that we have programs in place to reduce the risk of runway incursions and accidents while increasing airport capacity. These include deploying the ASDE-3 system, and validating and deploying an Airport Movement Area Safety System (AMASS).

We are developing a comprehensive Airport Surface Traffic Automation (ASTA) system in three phases. These consist of ASTA-1, a radar-based safety system designed to detect and prevent runway incursions. ASTA 2, which adds Mode-S Surveillance & Traffic Automation, and ASTA 3 which adds Mode S Data Link:

ASTA-1 builds on the AMASS capability, adding runway status lights, and automatically indicating runway status to pilots and vehicle operators.

ASTA-2 provides data tags on the ASDE-3 displays, and monitoring of taxi route conformance.

ASTA-3 provides cockpit delivery of alerts, automatic flight route clearance, weather products, graphical surface display and taxi-route guidance.

LOS ANGELES BASIN TRACON CONSOLIDATION

Mr. LEHMAN. You are requesting $76.1 million to continue the Los Angeles Basin TRACON consolidation project, a large increase over the $18.9 million provided last year. Why is such a large increase needed in fiscal year 1991, especially since you plan to ramp down to only $16 million in future years?

Mr. AQUILANO. To meet the schedule, December 1993, i.e., the date controller operation will commence. It is imperative that the new contractual agreements be initiated or existing contract options be exercised to meet the delivery of the building and equipment on time.

A major portion of the $76.1 million is for building construction—$34.5 million. But the remaining amount is primarily in communications and ARTS equipment. The funding profile has been well established in terms of this being the peak funding year to achieve the schedule.

Mr. LEHMAN. Last year, total costs were estimated at $103 million. This year, that figure is $114 million. Why are your cost estimates rising?

[The information follows:]

The increase is due to the increased costs associated with the VSCS component of the program.

Mr. LEHMAN. Last year, you expected to pick a site for this facility by the summer of 1989. Did you meet that schedule, and if so, which site was picked?

[The information follows:]

The actual site was identified in late summer of 1989 however, was not publicly announced until October 1989 due to ensuring proper coordination with all parties. This 30-day coordination period did not impact on-going associated scheduled activities.

The site selected was San Diego, California.

Mr. LEHMAN. What percentage of the $18.9 million provided for fiscal year 1990 has been obligated to date, and in which months do you plan to obligate the remainder?

Mr. AQUILANO. Approximately 66 percent of the FY 1990 funds have been obligated, but the remaining amount is scheduled for obligation in June of 1990.

Mr. LEHMAN. Provide a detailed breakdown of the fiscal year 1991 budget request and an obligation plan (month/year) for increments of those funds.

[The information follows:]

Title	Funding (Millions)	Obligation plan (month-year)
Dual ARTS III	.62	April 1991
FDADS	4.517	Do
Mapper	.05	Do
DSG	.05	Do
TPX-42	.192	Do
FDIO	.05	June 1991
DBRITE	.30	April 1991
SCIPS	.12	Do
Remote SCIPS	4.20	May 1991
TMU	.50	July 1991
HCVR	.463	Do
RCE	2.410	Do
Data Mux	.296	June 1991
Software	.50	May 1991
VSCS	5.010	Do
Power System (Eng/Pcs)	4.253	June 1991
Position Consoles	.282	January 1991
Clocks	.039	February 1991
SS Beacon Decoders	.004	Do
ASOS	.300	January 1991
DASI	.209	March 1991
RVR	.133	Do
MCC	.192	July 1991
Master DMARC	.257	September 1991
Data Display System	.099	Do
Land	9.0	January 1991
Building	34.350	December 1990
Admin Phones	.300	August 1991
Dual Radar Switch	.074	July 1991
A & E Contract	.500	January 1991
Program Support	6.830	March 1991
Total	76.1	

LOS ANGELES TRACON PROGRAM SCHEDULE

Mr. LEHMAN. Last year's schedule for consolidation showed Phase I at December 1993 and Phase IV at December 1994. Why is the vast majority of funding needed in October 1990, over three years before completion of even the first phase?

Mr. AQUILANO. All acquisitions and delivery of equipment must be accomplished prior to the actual movement of personnel. Fifty percent of the funding is required to allow the construction contract to be awarded for building. Phase I through IV are the consolidation phases and consist of the relocation and movement of personnel into the new facility from the existing TRACONS. To achieve the construction, delivery, installation and on site-testing required to meet the baselined schedule, it is essential to have the requested funding.

Mr. LEHMAN. For the record, please provide a detailed overall program schedule for this activity.

[The information follows:]

The program schedule is as follows:

	Start	Completion
Site Selection	April 1989	October 1989
Human Resources Management Plan	do	May 1990
Facility Design	September 1989	Do
TRACON Site Adapation	May 1990	July 1990
Construction Contract Procurement	do	December 1990
Construction	May 1991	March 1993
Installation	October 1992	November 1994
Commissioning	December 1993	December 1994

Mr. LEHMAN. Mr. Coughlin, how was your reunion at Yale?

Mr. COUGHLIN. Splendid. I would like to say for the record that I left here at quarter of 12 to catch a 12:20 plane which left at 2:45.

Mr. LEHMAN. Would you like to ask some questions?

MODE C PROGRAM COSTS

Mr. COUGHLIN. Last year, you advised the committee that Mode C is not technically risky, and is an off-the-shelf capability. Given this, why are total costs up 16 percent this year, from $91 million to $104 million?

Mr. POZESKY. It is not associated with technical risk or the technical problems. It is due to the need for automated test equipment and some contractor support for the repair of circuit cards associated with the ARTS III A equipment.

Mr. COUGHLIN. Do you currently estimate that your costs will exceed the target cost stated in the fixed price contract for Mode C? If so, by how much and why?

Mr. POZESKY. As indicated in the answer to the previous question, we do estimate about a $13 million increase for the test equipment and contractor support for the ARTS III A equipment.

MODE C INTRUDER INSTALLATION SITES

Mr. COUGHLIN. Please update for the record the Mode C Intruder installation site data shown on pages 706–707 of last year's hearing record.

Site	Delivery date	Commissioning
FAA Technical Center [1]	May 1992	February 1993
Albany, NY	October 1994	July 1995
Albuquerque, NM	October 1993	July 1994
Atlanta, GA	April 1993	January 1994
Baltimore, MD	December 1994	September 1995
Birmingham, AL	August 1992	May 1993
Boston, MA	April 1992	January 1993
Buffalo, NY	August 1993	May 1994
Burbank, CA	October 1993	July 1994
Charlotte, NC	September 1993	June 1994
Columbus, OH	July 1992	April 1993
Chicago, IL	April 1993	January 1994
Cincinnati, OH	August 1993	May 1994

Site	Delivery date	Commissioning
Cleveland, OH	December 1994	September 1995
Dallas, TX	March 1992	December 1992
Dayton, OH	August 1993	May 1994
Denver, CO	May 1992	February 1993
Des Moines, IA	October 1993	July 1994
Detroit, MI	March 1993	December 1993
Washington-Dulles, VA	April 1992	January 1993
El Paso, TX	October 1994	July 1995
FAA Academy, OK	April 1992	January 1993
Fort Rucker, AL	August 1993	May 1994
Hartford, CT	November 1994	August 1995
Honolulu, HI	February 1995	November 1995
Houston, TX	July 1992	April 1993
Indianapolis, IN	July 1992	April 1993
Jacksonville, FL	December 1994	September 1995
Kansas City, MO	February 1995	November 1995
Las Vegas, NV	December 1994	September 1995
Los Angeles, CA	April 1993	January 1994
Louisville, KY	September 1993	June 1994
Memphis, TN	July 1992	April 1993
Miami, FL	June 1993	March 1994
Milwaukee, WI	August 1993	May 1994
Minneapolis, MN	November 1994	August 1995
Nashville, TN	August 1993	March 1994
New Orleans, LA	June 1993	March 1994
Norfolk, VA	February 1995	November 1995
Oakland, CA	September 1992	June 1993
Oklahoma City, OK	October 1993	July 1994
Orlando, FL	November 1994	August 1995
Omaha, NE	October 1993	July 1994
Ontario, CA	June 1993	March 1994
Philadelphia, PA	March 1995	December 1995
Phoenix, AZ	June 1993	March 1994
Pittsburgh, PA	June 1993	March 1994
Portland, OR	June 1993	March 1994
Providence, RI	June 1993	March 1994
Raliegh, NC	October 1993	July 1994
Rochester, NY	October 1993	July 1994
Sacramento, CA	November 1994	August 1995
Salt Lake City, UT	August 1993	May 1994
San Antonio, TX	June 1993	March 1994
San Diego, CA	December 1994	September 1995
Santa Ana, CA	December 1994	September 1995
Seattle, WA	June 1993	March 1994
Shreveport, LA	October 1994	July 1995
St. Louis, MO	June 1993	March 1994
Syracuse, NY	October 1993	July 1994
Tampa, FL	June 1994	March 1995
Tucson, AZ	August 1993	May 1994
Tulsa, OK	October 1993	July 1994
Washington National	April 1992	January 1993

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[1] The FAA Technical Center is not an operational facility which will be commissioned with MCI. This is only a test facility. Orlando, FL was not included in the list on page 706-707 of last year's hearing record.

MODE C FUNDING REQUEST

Mr. COUGHLIN. Also for the record, please compare the fiscal year 1991 budget request to the amount forecast for 1991 last year, and provide a detailed breakdown and explanation of fiscal year 1991 funded activities.

[The information follows:]

A total of $76.8M was forecast for FY 91 for MCI, however the budget request for FY 1991 is $46M, which now includes Automated Test Equipment (ATE).

The breakout for that request is:

$40M—Input-Output Processors (IOPs).

$6M—Automated Test Equipment (ATE) and Interim Contractor Support (ICS) to repair circuit boards.

The remaining funds for this program are planned to be requested in our FY 1992 budget request.

MODE C PROGRAM SCHEDULE

Mr. COUGHLIN. Also provide a detailed program schedule and explain any schedule slippage since last year.

[The information follows:]

Contract award—September 1990.
First delivery—March 1992.
First commissioning—December 1992.
Last delivery—March 1995.
Last commissioning—December 1995.

Last year's schedule was based on a funding of $14.3M, appropriated in Fiscal Year 1990, with the remaining funds to be appropriated in Fiscal Year 1991. However, Fiscal Year 1991 funding was spread out to Fiscal Year 1992. This resulted in a schedule slippage.

Mr. COUGHLIN. The upgraded ARTS IIA system has recently become operational at a few TRACONs. The committee understands that FAA does not have a computer capacity program for small TRACONs and therefore does not know the capacity utilization of its systems. Nonetheless, you are planning to procure additional capacity to allow the addition of Mode C Intruder. Is this accurate, and if so, how can you justify that procurement without such information?

Mr. POZESKY. We do need the information you indicated. The FAA has computer tools that measure this ARTS IIA capacity off line. We are developing the tools necessary to measure the capacity on line. The validation of the requirement is still under study. We haven't actually established a need for it yet. We won't do that until after we measure the ARTS IIA performance. If as we anticipate, there is a requirement or a need, we will probably be requesting funds in the FY 92 budget for that.

ARTS IIA COMPUTER CAPACITY

Mr. COUGHLIN. Last year, you stated that under maximum traffic loads of 256 beacon targets and 102 beacon tracks in the worst case configuration, the ARTS IIA has approximately seven percent usable reserve computer capacity. How often do upgraded small TRACON sites experience this situation?

[The information follows:]

There has never been a documented occurrence of a trafic load of 256 beacon targets and 102 beacon tracks at an upgraded TRACON. A test was conducted at major ARTS II sites prior to the upgrade to ARTS IIA which involved insertion of a program patch to determine instantaneous target load. This test disclosed at the time a maximum of 135 beacon targets and 46 full data blocks.

Mr. COUGHLIN. When do you plan to implement a program for small TRACONs to enable you to determine capacity utilization and the amount of additional capacity needed at each site?

Mr. **Pollard**. We will have those capacity measures in our next update of the ARTS II software and that will be developed and employed to the field in July of '91.

Mr. **Coughlin**. In October 1989 you awarded a contract to the Unisys Corporation to replace existing computer memory with high speed solid state memory at each of the large TRACONs. Why was this contract necessary?

Mr. **Pozesky**. It was necessary to buy additional capacity inside the ARTS III systems and to deal with the growing capacity needs of the system. We have gotten delivery of some of the systems. We have some of the subsystems operational and we do believe we have been successful in achieving a 25 or 30 percent capacity increase with some of the prototype systems, particularly in solid state memories. We will shortly begin delivery of the production.

Mr. **Coughlin**. Will the interim upgrade of the present system be able to meet the ATC needs at these larger sites in the event of further slippages in the AAS schedule, and does your answer include the effect of the currently planned 13 month AAS delay?

[The information follows:]

This upgrade will meet the needs of the ATC system until AAS is implemented. Solid State Memory (SSM) and additional processors at the Dallas/Ft. Worth Airport increased the capacity and capability in the system there by approximately 15 percent. We have considered the effect of the planned AAS delay.

AAS INSTALLATION

Mr. **Coughlin**. When will the busiest TRACONs, such as Chicago, Dallas, and Los Angeles, be replaced by the AAS?

[The information follows:]

The current plan calls for these facilities to remain as independent radar facilities after ACF establishment. A plan is under development to identify the timing when AAS will be incorporated into these facilities.

INTERIM COMPUTER BUDGET PROFILE

Mr. **Coughlin**. For the record, please provide a budget item number and funding profile by fiscal year for the interim computer upgrade.

[The information follows:]

The budget item number is 2b(3).

MCI funding profile

Fiscal year:	*Million*
1990	$14.3
1991	46.0
1992	44.2

DALLAS/FORT WORTH EXPANSION PROGRAM

Mr. **Coughlin**. What is the status of construction of a new runway at Dallas-Fort Worth, and have there been delays since last year?

Mr. **Aquilano**. Dallas/Fort Worth International Airport plans to construct two new runways. Construction of the runway is dependent on the completion of the environmental impact statement which has been delayed several months beyond the July 1990 target date. A final decision on runway alternatives will be based on inputs received on the environmental impact statement. A definitive runway construction schedule will then be determined.

Mr. COUGHLIN. Last year, you advised us that a construction cost estimate and time frame could not be made until the environmental study was completed. Has that work been completed, and if so, what are the cost and schedule estimates today?

[The information follows:]

Construction cost estimates and schedules still cannot be made until the environmental impact study has been completed. This study is targeted for completion in September 1990.

Mr. COUGHLIN. What percentage of the $52.2 million appropriated in fiscal year 1990 has been obligated to date?

Mr. AQUILANO. Ten percent of the FY 1990 funds have been obligated to date.

DALLAS/FORT WORTH AIRPORT FUNDING

Mr. COUGHLIN. For the record, please provide a detailed breakdown of the fiscal year 1991 budget request.

[The information follows:]

Fiscal year 1991 detailed cost breakdown

	Million
Establish West ATCT	$10.9
Remote ASDE-3 to East/West ATCT's	3.3
Expand TRACON/ARTS	3.2
Establish ASR-9 with Mode S	7.9
Establish D/FW West RTR	3.4
Establish MALSR (East Runway)	0.8
Establish West Off-side VORTAC	0.8
Establish Compass Locator	0.2
Establish Waco Position	0.8
Resectorization/Add Six Positions at ARTCC	0.1
Establish/Add/Relocate VHF/UHF Frequencies (various)	2.8
Establish/Add BUEC's (various)	0.9
Technical Program Support	4.9
Total	40.0

All of the above funds are scheduled to be obligated in fiscal year 1991.

Mr. COUGHLIN. On page 59, why are you requesting an increase in this project, and what would be the impact if no increase was provided?

[The information follows:]

The cost increase is due to the introduction of definable future requirement cost estimates for incrementally funded contractor software development support for the automated terminal systems. These future requirements were not sufficiently definable for the FY90 item but were definable for the FY 1991 item at an average of $16.1M per year equating future requirement costs to 48.4M.

The continued support and improvement of the terminal automation systems software needs for the operational systems could not be expediently accomplished without this increase.

REMOTE MAINTENANCE MONITORING EQUIPMENT

Mr. COUGHLIN. On page 60, you are requesting $25 million to establish the remote maintenance monitoring systems. In a recent report, the DOT IG said that you were procuring some RMMs capability where the costs appeared to exceed the benefits, and they recommended that you cancel the environmental remote monitoring subsystems at a savings of $27.9 million. How do you respond to the IG's conclusions?

Mr. **Pozesky**. We generally agree with the IG's conclusions. We are studying the need for the environmental remote monitoring subsystem. We will complete that study by 1 July. I need to point out, however, that only about $9 million of the $27.9 million is associated with the ERMS subsystem and that is the only part that is under reconsideration at the moment.

ERMS PROJECT COST/BENEFIT ANALYSIS

Mr. **Coughlin**. When do you intend to complete a new cost/benefit analysis for the ERMS project?

[The information follows]

The new cost-benefit analysis for the ERMS project is expected to be completed by June 30, 1990.

DETAILED COST BREAKDOWN SCHEDULE

Mr. **Coughlin**. Please provide for the record a breakdown of the fiscal year 1991 request similar to that shown on page 717 of last year's hearing record, and include columns for both fiscal years 1990 and 1991.

[The information follows:]

[In millions of dollars]

	Fiscal year—	
	1990	1991
Maintenance data terminal procurement	$9.906	0
Remote monitoring subsystem concentrator (RMSC) procurement	12.830	$7.100
Maintenance management system and maintenance data terminal software	.600	1.200
Monitor and control software	0	5.900
Environmental remote monitoring subsystem (ERMS) procurement	0	9.102
VORTC remote monitoring subsystem retrofit procurement	0	1.698
Total	23.336	25.000

REMOTE MAINTENANCE MONITORING FUNDING BREAKDOWN

Mr. **Coughlin**. Please update for the record the RMM obligation profile data as shown on page 719 of last year's hearing record.

[The information follows:]

APPROPRIATION/OBLIGATION PROFILE

[millions]

Fiscal year	Appropriation	Obligated to date
1982	8.0	8.0
1983	15.1	15.1
1984	1.8	1.8
1985	43.4	43.4
1986	43.4	43.4
1987	14.5	14.5
1988	21.3	21.0
1989	45.0	38.6

APPROPRIATION/OBLIGATION PROFILE—Continued

[millions]

Fiscal year	Appropriation	Obligated to date
1990	23.3	19.9
1991	[1] 25.0	N/A

[1] Requested.

RMM OBLIGATION RATES

Mr. COUGHLIN. Obligations for this program have historically been very slow. For fiscal year 1990, you intended to obligate $29.5 million of the $35.8 million request during fiscal year 1990. What is your current plan, and what percentage have you obligated to date?

Mr. POZESKY. About $23 million was authorized. Roughly $20 million, or 85 percent is obligated to date, and about 95 percent is expected to be obligated by the end of this fiscal year—FY 1990.

CONTROL TOWER REPLACEMENT

Mr. COUGHLIN. On page 61, you are requesting $70.5 million to continue replacement of control towers. Of this amount, $15.5 million is for the second installment for replacement of the tower at Chicago's O'Hare airport. $2.4 million dollars was provided last year, for combined costs of $17.9 million. Last year, however, total costs for this project were stated as $12.1 million. Why is there a difference?

Mr. POLLARD. The initial site that was chosen was in a parking lot and would be a typical installation. However, after reviewing it, it was unacceptable. It would change the minima into some of the approaches for O'Hare and the current site actually would cost more because it is in conjunction with one of the existing terminal buildings at the airport.

Mr. COUGHLIN. What is the outyear cost of the three projects for which you are requesting initial funds in fiscal year 1991?

[The information follows:]

The outyear cost for the three projects is $21.4M.

Mr. COUGHLIN. Why is it necessary to violate the full funding principle for this program?

Mr. POZESKY. Most of the funds for these kinds of tower programs are not obligated until the second or third year. So in order to avoid unnecessary large carryovers in this area, it makes sense to take these kinds of efforts off of full funding.

TOWER REPLACEMENT SITES

Mr. COUGHLIN. For the record, please provide a breakdown of the new projects in detail similar to that provided on pages 722-726 of last year's hearing record.

[The information follows:]

Location	Fiscal year 1991 Cost	Calendar year 1989OPS	Age	Phase I
Los Angeles, CA	$21,000,000 [1] (21,000,000)	632,237	18	33.152
Chicago (Midway),IL	$1,500,000 [1] (10,401,900)	316,041	16	12.057
Kansas City, MO	$2,000,000 [1] (10,800,000)	239,018	18	12.074
San Diego, CA	$1,500,000 [1] (5,870,000)	206,962	22	10.625

[1] Total Cost.

Los Angeles, CA—$21,000,000.

This project was approved in FY 1986. The existing control tower facility is in need of replacement to provide additional operational and administrative space. In addition, due to airport expansion over the past 10 years, the height of the control tower is insufficient for unrestricted view of all runways and taxiways. The control tower cab is too small to support the current air traffic operation and there is no room for expansion. The request for $21,000,000 will fully fund the new tower facility. We have been working with the city of Los Angeles to obtain the optimum site for the new tower facility and agreement on the architectural design. Based on site selection and structure design the estimated cost for the project is now estimated at $21,000,000. A contract award is planned in FY 1991.

Three locations are submitted in FY 91 for first year funding.

San Diego, CA—The present 22 year old ATCT is not large enough to accommodate the required operational positions and equipment to meet current and future requirements and the increasing traffic demand at this Level III Limited Radar Approach Control facility. The existing tower structure does not meet current electrical codes and earthquake standards. The tower's location, orientation, and height are inadequate for optimum control and observation of the traffic pattern and airport movement areas. Administrative and technical support space is limited and expansion is not practical or feasible.

Chicago Midway, IL—This ATCT is a Level IV Limited Radar Approach Control Facility with steadily increasing traffic activity. Existing operational, technical, and administrative space are inadequate to meet current and future requirements. Additional equipment needed to handle the growth of traffic at the airport and in the Chicago area cannot be installed in an efficient manner. The Airway Facilities offices are located approximately one-half mile from the tower which makes communications and coordination with the technicians difficult. Airport renovation and expansion will further impair visibility from the tower cab due to its current location, height, and distance to aircraft movement areas.

Kansas City (International), MO—The present ATCT is nearly 30 years old and relocation is necessary to eliminate operational, technical support, administrative, structural, and environmental deficiencies. Additionally, asbestos has been found throughout the building making expansion or renovation infeasible. This facility is a Level IV hub facility with steadily increasing traffic activity. New equipment planned for this ATCT cannot be installed efficiently due to the structural problems, configuration constraints, and the asbestos problem. The existing heating and cooling system is obsolete and must be supplemented with fans.

TOWER REPLACEMENT CRITERIA

Mr. COUGHLIN. Last year, you told us that you don't have specific replacement criteria for these facilities, and this year's justifications states that "locations are not in priority order and are subject to change based upon on-site evaluations." It sounds as if you are not really sure what you need, or when you need it. What exactly is your requirement process for determining which facilities to budget for, and what supporting analyses do you have to back that up?

Mr. POLLARD. We have a process, we don't have specific criteria, but we would go to our regions for the F&E items, and they submit in priority their requests. They come into headquarters and compete at headquarters.

It can change from one year to the next. Primarily, the regions would look just within their region. We get them in headquarters, they compete with other regions' input.

Mr. COUGHLIN. Last year, you provided us your list of 15 facilities which meet FAA's tower replacement criteria (page 728). Interestingly, none of the new locations in the fiscal year 1991 request are on that list. Why not?

Mr. POLLARD. Well, it goes back to the answer I just gave there, sir, in that each year, when we go out for a call, there may be some new sites that enter, and the bottom line is that some of the new sites would have a higher priority.

Occasionally, we have a lot of our facilities where we encounter asbestos problems or because of the change at the airport. If a carrier starts to hub there, that would change the priority.

Mr. COUGHLIN. All of last year's list has been scrubbed and replaced with a new list?

Mr. POLLARD. I can still say that last year's list is still a good list. However, we have some funding constraints as to what we actually think we can legitimately ask for. We would still like to have all the sites be operating within the guidelines of what we thought would be appropriate as far as modernization and relocation projects.

Mr. STOER. May I expand on that answer, Mr. Coughlin? The control tower modernization and replacement program is one of our more underfunded areas. One of the problems we have is with a number of major NAS Plan contracts awarded, and behind schedule, we have had to give priority to keeping our commitments under existing contracts to major systems such as the AAS and others.

We expect to get on in the fiscal year 1992, 1993 time frame with an accelerated program in our control tower area. We have over 400 control towers, and that is an area that we are very concerned about needing to take care of.

Mr. COUGHLIN. How can you ask for more money when the criteria changes every year?

Mr. STOER. We have standard criteria that we do use and many towers reach or exceed the threshold level. The question then becomes a managerial question of which ones to go forward with from a priority standpoint. Also, as Mr. Pollard mentioned, we also encounter unexpected problems sometimes associated with site-specific problems. Asbestos has been a problem in Detroit, for example.

TOWER REPLACEMENT CANDIDATE LIST

Mr. COUGHLIN. Please update the tower replacement candidate list as shown on page 728 of last year's hearing record.

[The information follows:]

For Fiscal Year 1991, 22 locations were identified as potential candidates for facility replacement. Three of these sites are included in our FY 1991 submission to Congress. The remaining sites will be considered in future budget years. Sites are submitted annually and undergo a regional and headquarters evaluation. Priorities are assigned at both the regional and headquarters level. The actual number of sites requested in a given budget year is based on availability of funds and competing priority projects.

Nineteen remaining candidate locations are listed below with a preliminary cost estimate, criteria rating, and remarks. Each location meets replacement criteria.

Location	Cost estimate	Airport ratio	Remarks
Albany, NY	$7,800,000	4.827	Future Budget.
Syracuse, NY	10,500,000	6.528	Do.
Islip, NY	6,900,000	3.550	Do.
Minneapolis, MN	10,000,000	18.327	Do.
St. Paul, MN	2,900,000	2.346	Do.
East St. Louis, IL	2,400,000	1.738	Do.
Bangor, ME	4,289,000	3.231	Do.
Worcester, MA	3,507,900	1.968	Do.
Bedford, MA	3,432,200	3.135	Do.
Klamath Falls, OR	2,670,800	1.245	Do.
Salt Lake City, UT	9,485,400	12.663	Do.
Portland, OR	8,224,300	10.308	Do.
Beaumont, TX	4,946,600	.935	Do.
Harlingen, TX	3,300,000	1.682	Do.
Tulsa, OK	8,850,000	5.985	Do.
Santa Barbara, CA	5,870,100	3.015	Do.
Salina, KS	3,186,200	1.406	Do.
Topeka Forbes, KS	2,742,700	1.330	Do.
Houston (Hobby), TX	6,760,000	9.888	Do.

TOWER REPLACEMENT STATUS

Mr. COUGHLIN. Also for the record, please update the funding and construction status information for tower replacement projects, as shown on pages 729 to 730 of last year's hearing record. Please add fiscal year 1990 and delete 1987.

[The information follows:]

FISCAL YEAR 1988

Atlanta Fulton County $4,297,000.

Status: Contract has been awarded.

Schedule: Notice to proceed with construction May 1990. Commissioning June 1992.

St. Petersburg $4,243,000.

Status: Site has tentatively been selected.

Schedule: Construction award January 1991. Commissioning February 1993.

New Orleans $6,697,000.

Status: Site has been selected. Soil borings have been made.

Schedule: Construction award January 1991. Commissioning September 1993.

Sioux City $3,935,000.

Status: Under construction.

Schedule: Commissioning January 1992.

Moses Lake $765,000.

Status: This project is to increase the height and size of the existing tower rather to build a completely new structure. Design drawings are nearly complete.

Schedule: Construction award March 1991. Commissioning January 1992.

Chino $3,929,000.

Status: The site has been selected.

Schedule: Construction award September 1991. Commissioning September 1993.

Houston Intercontinental $10,234,000.

Status: Site selection studies are underway.

Schedule: Construction award December 1991. Commissioning July 1994.

FISCAL YEAR 1989

Allentown $6,363,000.
Status: Site selection survey has been made.
Schedule: Construction award February 1992. Commissioning June 1994.
Windsor Locks $7,643,200.
Status: Preliminary site selection studies have been made.
Schedule: Construction award September 1991. Commissioning September 1994.
Detroit Metro $12,714,600.
Status: Construction is under way.
Schedule: Commissioning September 1991.
Fort Smith $2,339,900 (Partial Funding).
Status: A site has been tentatively selected.
Schedule: Construction award March 1991. Commissioning April 1993.
Orlando Executive $3,766,300.
Status: A site has been tentatively selected.
Schedule: Construction award May 1991. Commissioning May 1993.
San Jose Municipal $4,673,000.
Status: The site has been selected.
Schedule: Construction award September 1990. Commissioning September 1992.

FISCAL YEAR 1990

St Louis—
Fiscal Year 1990 $2,300,000.
Fiscal Year 1991 9,954,200.
Status: Site selection is underway.
Schedule: Construction award November 1991. Commissioning September 1993.
La Guardia—
Fiscal Year 1990 $10,049,000.
Fiscal Year 1988 114,600.
Status: Site selection study is underway.
Schedule: Construction award May 1992. Commissioning May 1994.
Newark—
Fiscal Year 1990 $2,200,000.
Fiscal Year 1991 9,103,200.
Status: Preliminary site selection studies have been made.
Schedule: Construction award May 1994. Commissioning May 1996.
Chicago O'Hare—
Fiscal Year 1990 $2,200,000
Fiscal Year 1991 15,493,000.
Status: Proposed site is being studied. Preliminary engineering is underway.
Schedule: Construction award October 1991. Commissioning July 1993.
Helena—
Fiscal Year 1990 $351,000.
Fiscal Year 1991 1,738,700.
Status: Preliminary site selection studies have been made.
Schedule: Construction award July 1992. Commissioning January 1994.
Montgomery—
Fiscal Year 1990 $900,000.
Fiscal Year 1991 4,344,100.
Status: Preliminary site selection studies have been made.
Schedule: Construction award May 1992. Commissioning May 1994.
Roswell—
Fiscal Year 1990 $800,000.
Fiscal Year 1991 3,866,700.
Status: Preliminary site selection studies have been made.
Schedule: Construction award September 1991. Commissioning March 1994.

INTERIM SUPPORT PLAN FUNDING ESTIMATES

Mr. COUGHLIN. As shown below, total costs for the Interim Support Plan, ISP, last year were stated at $517 million. This year, that figure is down to $429 million. However, the fiscal year 1991 requirement has decreased much more significantly, from $294 million to $99 million. This leads us to conclude that either your 1989 estimate was extremely bad or your current outyear cost estimates are low. Would you comment on your cost estimates?

[The chart follows:]

ISP COSTS

[In millions of dollars]

	1989 submission	1990 submission
Fiscal year:		
1989 and prior	113.2	138.5
1990	110.0	71.9
1991	294.0	99.0
Outyears	([1])	120.3
Totals	517.2	429.7

[1] Not shown.

Mr. AQUILANO. The $517.2 million was based upon completion of the ISP in three years including nine radars and two secondary sensor sites. The $429.7 million estimate reflects three ASR–9s dropping out, since they did not meet the established criteria and were not cost-beneficial. The fiscal year 1991 requirement, 1989 submission, $294 million was for a three-year completion and 11 ASR–9s. The 1990 submission of $99 million was for a four-year completion and eight ASR–9s.

Mr. COUGHLIN. According to the GAO, ISP projects are not required to have detailed cost-benefit studies and configuration control boards are not normally utilized, and that as a result ISP project requirements are not rigorously determined or fully documented. How are these requirements determined, at what level within the FAA, and how does that process differ from OMB's requirements for major acquisitions?

Mr. AQUILANO. The ISP is not designated as a major systems acquisition. The FAA has completed the configuration control on the ISP. It was approved through the NAS Configuration Control Board process and chaired by the Associate Administrator for Advanced Design and Management Control.

The ISP was approved in accordance with the OST/FAA Acquisition Delegation Implementation Plan. there is no acquisition risk since there is no new technology involved. We are buying more of the same proven systems and equipment and in some cases using the existing contract options. No research or development is involved. The program requirements were determined and documented.

Mr. COUGHLIN. It says the total cost is over $150 million. Why isn't it considered a major acquisition?

Mr. AQUILANO. It was determined that the ISP is in fact a compilation of many small purchases and not one large acquisition.

INTERIM SUPPORT PLAN PROJECT BREAKDOWN

Mr. COUGHLIN. For the record, please update the ISP funding profile found on page 758 of last year's hearing record.

[The information follows:]

FUNDING REQUIREMENTS

[In millions of dollars]

Fiscal year—				Total
1989	1990	1991	1992	
138.5	71.9	99.0	120.3	429.7

FUNDING PROFILE

[In millions of dollars]

	Fiscal year—				
	1989	1990	1991	1992	Total
Project:					
ARTS III solid state memory	41.5	3.0	3.0	0	47.5
ARTS III keyboards/trackballs/software/ancillary equipment	5.2	1.0	.1	0	6.3
ARTS III radar positions	60.2	6.5	9.3	7.4	83.4
ARTS III disk drive refurbish	7.9	0	0	0	7.9
ARTS II separate flight plan	.3	0	0	0	.3
ARTS II multi-sensor process	4.8	0	0	0	4.8
Long range radar upgrades	7.3	0	0.2	36.0	43.5
ILS (GRN-27) replace	4.0	0	0	10.0	14.0
ILS glide slope antennas	7.3	0	0	0	7.3
ARTS II tape drive replace	0	3.1	2.3	0	5.4
ARTS II radar positions	0	23.5	14.8	2.5	40.8
ARTS II uninterruptable power supply	0	0	7.5	0	7.5
ICSS backup	0	4.6	4.0	8.4	17.0
Airport weather sensors	0	3.2	1.9	0	5.1
ASR-9 establish	0	27.0	52.6	56.0	135.6
ISP program support	0	0	3.3	0	3.3
Total	138.5	71.9	99.0	120.3	429.7

INTERIM SUPPORT PLAN OBLIGATION RATES

Mr. COUGHLIN. At the end of fiscal year 1989, FAA had obligated only 30 percent of that year's appropriation for ISP. Why did first-year ISP spending start so slowly, and has fiscal year 1990 performance to date exceeded that rate?

Mr. AQUILANO. During fiscal year 1989, obligations of FAA funds were subject to the following constraints: The FAA requested reprogramming and approval was granted by letter from the United States Senate Committee on Appropriations dated July 13, 1989. Fiscal year 1989 was the first year funds were available and procurement requests could not be processed until funding was available. Fulfillment of legal requirements and obligations with potential suppliers was time-consuming.

The fiscal year 1990 obligation of funds has exceeded that of fiscal year 1989. $27 million of fiscal year 1990 funds have been obligated during the first quarter. This represents 37.5 percent of the fiscal year 1990 appropriation of $71.9 million. An additional $7 million of fiscal year 1989 funds were also obligated.

ISP PROGRAM RELIABILITY OBJECTIVES

Mr. COUGHLIN. What system reliability objectives does FAA have for the overall ISP program, and what would be the level without the ISP?

[The information follows:]

The objective of the Interim Support Program is improve the current reliability, maintainability, and availability for those systems being supported by the program. The FAA believes that without the ISP, overall system reliability would be reduced.

The following are specific improvements being implemented by the ISP:

ARTS III/IIIA/EARTS

Many unique components and subassemblies are currently in short supply or unavailable (i.e., disk drives, keyboards and trackballs, and subassemblies unique to the EARTS system). Therefore, maintenance of this equipment is difficult, costly, and is impacting maintenance workload as well as system availability.

By replacing the existing core memory with solid state memory, a benefit of approximately 20 percent increase in processing efficiency at single sensor sites and 30 percent at dual sensor sites can be attained. This will permit the central track store tables to be increased by approximately 20 percent, thus increasing ARTS IIIA aircraft tracking capacity. Since core memory is no longer manufactured, maintenance of the present ARTS IIIA core memory modules is expensive. The replacement of core memory with solid state memory will facilitate maintenance and supply support of the existing ARTS IIIA equipment.

ARTS II

ARTS II system reliability, maintainability, and availability has become more critical as air traffic levels at many ARTS II facilities approach those of ARTS III. Two areas which have an adverse effect on ARTS II system availability are its susceptibility to power drops or surges and its magnetic tape subsystem which has no backup. Records indicate that 90 percent of all system failures and interruptions are power related. In addition, the magnetic tape subsystem, which is used for program loading/recovery and data extraction, contains a drive motor which is no longer manufactured and is in short supply.

LONG RANGE RADAR

The ARSR-1/2 and FPS-20 family of long-range radars are vacuum tube designs and have been in service for over 25 years. These systems require intensive maintenance. These facilities are maintained by technicians at or rapidly approaching retirement age. It is becoming increasingly difficult and costly to train entry level technicians to staff these facilities since they generally have little or no experience with outdated vacuum tube technology.

CAPTURE EFFECT GLIDE SLOPE CONVERSION KITS

To improve ILS reliability and meet clearance requirements for category II equipment, 55 "capture effect" glide slope conversion kits will be procured for those glide slope facilities affected by obstructions.

WEATHER SENSORS

Much of the FAA's airport weather sensing equipment (cloud height indicators and remote readout hygrothermometers) in air traffic control tower facilities is experiencing an increasing rate of failure due to its age. In addition, field facilities are encountering supply support problems associated with this obsolete hardware. Maintenance of this equipment is no longer cost effective and the FAA's ability to provide reliable weather information is being jeopardized. AWOS equipment for these facilities will not be available until the 1993 to 1995 time period.

INTEGRATED COMMUNICATIONS SWITCHING SYSTEM (ICSS) BACKUP

The current ICSS system does not provide the air traffic controller with air/ground communications should the ICSS fail. During an ICSS failure, other means of providing a limited number of independent backup frequencies are required for controllers to maintain an orderly flow of air traffic.

NEW DENVER AIRPORT COST ESTIMATE

Mr. COUGHLIN. On page 67, you are requesting $60 million for the Federal share of costs for the new Denver airport. Can you update us on the total estimated cost of that airport, and of that amount, the percentages to be assumed by local or private funds, state funds, and Federal funds?

[The information follows:]

The $60 million requested is to establish facilities including equipment, and is separate from the grant funding provided under A.I.P. Phase I construction cost is estimated to be $2.235 billion (escalated to the mid-point of construction). A.I.P. grants in FY-89 and FY-90 of $150 million and the proposed Letter of Intent for $351 million bring total A.I.P. assistance to $501 million, which is 22.4 percent of the cost. The remainder of the cost is being financed by bonds issued by the City and County of Denver, Stapleton revenues, and eventual sale of the Stapleton site.

NEW DENVER AIRPORT F&E COST BREAKDOWN

Mr. COUGHLIN. Please provide for the record a detailed cost breakdown of your $60 million fiscal year 1991 request.

[The information follows:]

FY-91 F&E budget request

	Total
Approach Light Systems (ALSF-II)	$5,650,000
Airport Surface Detection Equipment	1,610,000
Airport Surveillance Radar (ASR)	4,106,000
Airport Traffic Control Tower (ATCT)	2,493,000
Airport Cable Loop	8,900,000
Category I Instrument Landing System	1,456,000
Category III Instrument Landing System	3,240,000
Medium Intensity Approach Light System	3,290,000
Precision Approach Path Indicator (PAPI)	1,760,000
Remote Communication Facilities (RCF)	3,430,000
Remote Maintenance Monitoring (RMM) Systems	1,022,000
Runway Visual Range (RVR)	1,350,000
Terminal Radar Approach Control (TRACON)	10,107,000
Very High Frequency Omni-directional Range	1,746,000
Front Range Satellite ATCT	3,000,000
Low Level Windshear Advisory System (LLWAS)	1,948,000
Distance Measuring Equipment (DMEL)	900,000
Air Traffic Control Telecommunications System	437,000
Relocate Remote Communications Link (RCL)	205,000
ICSS Equipment	2,850,000
Television Microwave Link (TML)	500,000
Total	60,000,000

NEW DENVER AIRPORT OBLIGATION PLAN

Mr. COUGHLIN. Please also provide an obligation plan for both fiscal year 1990 and fiscal year 1991 funds, by month and calendar year.

[The information follows:]

FY-90 and FY-91 obligation plan

[All dollars in thousands]

October 89	0
November 89	[1] $31
December 89	[1] 18
January 90	0
February 90	0
March 90	[1] 300

April 90	[1] 4,241
May 90	723
June 90	845
July 90	1,207
August 90	4,094
September 90	13,754
FY-90 total	25,213
October 90	0
November 90	11,500
December 90	2,700
January 91	1,150
February 91	850
March 91	6,000
April 91	10,000
May 91	6,567
June 91	9,500
July 91	6,400
August 91	9,600
September 91	9,800
FY-91 total	74,067

[1] Actual.

TOWER COMMUNICATIONS SYSTEM PROGRAM

Mr. COUGHLIN. On page 68, you are requesting $23 million for a new start in fiscal year 1991, the Tower Communications System (TCS). Last year you advised us that an interim capability called ICSS would be adequate to support tower requirements through fiscal year 1993.

What is the difference in capability between ICSS and TCS, and is that worth the $149.2 million budgeted for TCS?

Mr. POZESKY. I need to point out that we still believe that the ICSS will meet our needs through 1993. We are looking at different kinds of towers, different air traffic control operators. We are looking at digital interfaces and new technology or a newer technology.

We are currently in the process of doing internal cost benefit analysis to revalidate the detailed engineering approach to the TCS design. We believe that it will be proven to be both beneficial and necessary for ATC in the future.

Again, the target for implementation is beyond the 1993 time frame.

Mr. COUGHLIN. So the $23 million is just research money?

Mr. POZESKY. It is to begin the development in 1991. We are in the process of revalidating and doing the design and engineering work, and the requirements definition right now.

TCS REQUIREMENTS VALIDATION

Mr. COUGHLIN. In what document are the requirements for TCS validated, and at what level within the FAA is the requirement approved?

[The information follows:]

Operational and functional requirements are contained in the NAS systems specification NAS-SS-1000 and FAA Order 7032.8B, "Air Traffic Operational Requirements for Tower Communications System (TCS)". FAA Order 7032.8B was approved at the Service Director level while FAA Order 6000.30A was approved by the FAA Administrator.

TCS ALTERNATIVES

Mr. COUGHLIN. What alternatives to TCS were considered?

[The information follows:]

Two alternatives to TCS were considered: (1) a continuation of the leases for the equipment currently in use with modifications and upgrades of the equipment to meet the specified TCS operational and functional requirements or (2) a procurement or lease of additional Integrated Communications Switching System (ICSS) equipment similar to that procured in the 1984-1990 timeframe. The first alternative was rejected because the current equipment is 10 to 20 years old and modifications or upgrades would not be technically or economically feasible. The second alternative was rejected because ICSS switches do not meet all of the specified operational and technical requirements.

TCS PROGRAM DESIGN

Mr. COUGHLIN. What is the magnitude of design and development work necessary for TCS?

Mr. POZESKY. Well, the engineers, sir, tell us that it is low technology, off-the-shelf hardware. I have heard that before and I am sure you have. So I don't want to underestimate the technical risks associated with the program.

It does not at the moment appear to be a high-tech program. Hopefully we can get this system without a great deal of development.

Mr. COUGHLIN. Do you have a dollar estimate?

Mr. POZESKY. About $127 million is what we are currently estimating for the total program.

Mr. COUGHLIN. Just for design?

Mr. POZESKY. No, for the total program for the TCS system.

You are asking for the design phase? I don't have an estimate for the design phase itself. I know the total program costs we are estimating is about $127 million.

TCS PROCUREMENT MILESTONES

Mr. COUGHLIN. When are the critical design review and production readiness review scheduled?

[The information follows:]

The Critical Design Review will occur approximately one year after contract award. The Production Readiness Review will occur approximately two years after contract award. Contract award is presently scheduled for August 1991.

TCS SWITCHES

Mr. COUGHLIN. How was it determined that 40 TCS switches were needed in fiscal year 1991 instead of some other number?

[The information follows:]

Since the budget item was submitted, the TCS program has undergone extensive review. As a result, total estimated program cost savings of over $30 million have been made. FY 1991 funding will be used to fund the development and testing of first article hardware and software and the development of all documentation and logistics support elements required to field operational systems. Future funding requests will fund the acquistion of all operational systems at a less cost per unit since all nonrecurring costs will have been paid. First full year production is expected at the 40 system level based on a mature manufacturing capability of 50-60 systems per year over a five year production period to meet our requirement for 249 systems.

TCS SITE LISTING

Mr. COUGHLIN. For the record, provide a listing of the sites in which those 40 switches would be installed.

[The information follows:]

After the budget item was submitted showing 40 units to be procured in FY 1991, we have re-evaluated the program acquisition strategy to a fly-before-you-buy process. We now plan to procure in FY 1991 one first article equipment (and the development of all documentation and logistics support elements required to field operational systems) prior to full production which is now planned to be funded starting in FY 1992. The review has also indicated that the total program cost of $162.4 million indicated in our budget request can be reduced by approximately $30 million.

EMERGENCY TRANSCEIVERS REPLACEMENT

Mr. COUGHLIN. On page 69, you are requesting $5 million for another new start, replacement of emergency transceivers for the ATCTs and TRACONs. How often are these emergency systems used, on average?

[The information follows:]

The emergency transceivers are always turned on and available for use. Controllers check their operation on every shift. The FAA does not keep national records of the number of times the emergency transceivers are used, but incidents like the San Francisco earthquake have demonstrated that the transceivers are absolutely essential to air safety and air traffic operations.

Mr. COUGHLIN. How did you determine that these systems needed to be replaced?

[The information follows:]

The majority of emergency equipment now in use in the ATCT's and TRACON's are tube type systems. Most of the present equipment is technologically obsolete and meets neither minimum performance standards for operation in a congested radio frequency spectrum environment, nor the criteria for Radio Frequency Interference (RFI) elimination.

The FAA is currently experiencing severe logistic support and RFI problems with existing equipment. Much of the equipment is 30 years old, was purchased prior to the implementation of the 25KHz channel spacing requirement, and is, therefore, a major contributor to the increasing number fo RFI problems. The obsolete nature of the hardware, the lack of logistics support, and the preponderance of RFI problems all contribute to the urgent need to replace this equipment.

CHICAGO TRACON UPGRADE

Mr. COUGHLIN. On page 171, you are requesting $1.5 million for initial studies on relocating the O'Hare airport TRACON. This facility was established less than 20 years ago—why do we need to build a new facility?

Mr. POLLARD. The TRACON needs additional space and, as you know, sir, it is an underground facility. It can't expand on the ground level.

In addition, they have a metro coming through nearby and we have some concern about the interference.

Mr. COUGHLIN. Have you fully investigated other alternatives such as expanding the existing facility?

[The information follows:]

The current TRACON facility has been expanded to its maximum limits. Additional operating positions have been added over the last 10 years to meet increased traffic demands. The facility is located underground, adjacent to an international hotel on one side, an airport access road on the other side, and parking and airport terminal structures on the remaining sides. Further expansion of the existing facility is not possible.

Based on current and forecasted activity, additional operational and support positions will be required to provide the services necessary for the safe and efficient control of air traffic in the greater Chicago metropolitan area.

Mr. COUGHLIN. You estimate total FAA costs for this project at $116.5 million. How confident are you of that estimate?

Mr. AQUILANO. This is a preliminary estimate based on comparison of similar facility establishments. This estimate appears reasonable. However, site variables could influence this estimate.

A final estimate will be used for the fiscal year 1992 submission that will be based on cost analysis currently under way.

FSS MODERNIZATION PROGRAM

Mr. COUGHLIN. Is it still your plan to commission all the AFSSs by the end of fiscal year 1992, and complete consolidations by the end of fiscal year 1994? If this schedule has been delayed, please explain why.

Mr. POLLARD. It is our plan to commission all the AFSSs by the year 1993 and to consolidate the FSS by 1995. The primary reason for delay was the prohibition we had from Congress not to consolidate any FSSs until we had an automated system.

FSS CONSOLIDATIONS TO DATE

Mr. COUGHLIN. Please update for the record the breakdown of all FSS Consolidations to date, as shown on pages 785–787 of last year's hearing record.

[The information follows:]

FISCAL YEAR 1984

FSS	*AFSS*
Toledo, WA	Seattle, WA
Key West, FL	Miami, FL
Guam [1]	Honolulu, HI
Boston, MA	Bridgeport, CT
Windsor Locks, CT	Bridgeport, CT
Yuma, AZ [1]	San Diego, CA

FISCAL YEAR 1985

FSS	*AFSS*
Cotulla, TX [1]	San Angelo, TX
Lone Rock, WI	Green Bay, WI
Lafayette, IN	Terre Haute, IN
Des Moines, IA	Ft. Dodge, IA
Kansas City, MO	Columbia, MO
Milwaukee, WI	Green Bay, WI
Alma, GA	Macon, GA
New Orleans, LA	DeRidder, LA
Oklahoma City, OK	McAlester, OK
Houston, TX	Conroe, TX
Phoenix, AZ	Prescott, AZ
Las Vegas, NV	Reno, NV

FISCAL YEAR 1986

FSS	*AFSS*
Philipsburg, PA	Altoona, PA
Salt Lake City, UT	Cedar City, UT
Lafayette, LA	DeRidder, LA
Douglas, AZ	Prescott, AZ
Ely, NV	Prescott, AZ

FISCAL YEAR 1987

FSS	*AFSS*
Burlington, IA	Ft. Dodge, IA
Mason City, IA	Ft. Dodge, IA
Ottumwa, IA	Ft. Dodge, IA
Dodge City, KS	Wichita, KS
Emporia, KS	Wichita, KS
Goodland, KS	Wichita, KS
Hill City, KS	Wichita, KS
Vichy, MO	Columbia, MO
Chadron, NE	Columbus, NE
Omaha, NE	Columbus, NE
Sidney, NE	Columbus, NE
Harrisburg, PA	Williamsport, PA
Danville, VA	Leesburg, VA
Roanoke, VA	Leesburg, VA
Chicago, IL	Kankakee, IL
Indianapolis, IN	Terre Haute, IN
Detroit, MI	Lansing, MI
Minneapolis, MN	Princeton, MN
Columbus, OH	Dayton, OH
Augusta, ME	Bangor, ME
Houlton, ME	Bangor, ME
Concord, NH	Bangor, ME
Albany, NY	Burlington, VT
Glens Falls, NY	Burlington, VT
Massena, NY	Burlington, VT
Montpelier, VT	Burlington, VT
Watertown, NY	Burlington, VT
LaJunta, CO	Denver, CO
Portland, OR	McMinnville, OR
The Dalles, WA	McMinnville, OR
Bryce Canyon, UT	Cedar City, UT
Hoquiam, WA	Seattle, WA
Brunswick, GA	Macon, GA
Valdosta, GA	Macon, GA
Greer, SC	Anderson, SC
Memphis, TN	Jackson, TN
Lake Charles, LA	DeRidder, LA
Gage, OK	McAlester, OK
Hobart, OK	McAlester, OK
Galveston, TX	Conroe, TX
Palacios, TX	Conroe, TX
Mineral wells, TX	FT. Worth, TX
Paso Robles, CA	Hawthorne, CA
Needles, CA	Riverside, CA

FISCAL YEAR 1988

FSS	*AFSS*
Tonopah, NV	Reno, AZ
Manhattan, KS	Wichita, KS
Russell, KS	Wichita, KS
Salina, KS	Wichita, KS
Joplin, MO	Columbia, O
Cape Girardeau, MO	St. Louis, MO
Lincoln, NE	Columbus, NE
Ft. Wayne, IN	Terre Haute, IN
Jackson, MI	Lansing, MI
Saginaw, MI	Lansing, MI
Traverse City, MI	Lansing, MI
Jamestown, ND	Grand Forks, ND
Zanesville, OH	Cleveland, OH
Houghton, MI	Green Bay, WI
LaCrosse, WI	Green Bay, WI
Wausau, WI	Green Bay, WI
Akron, CO	Denver, CO
Baker, OR	McMinnville, OR
Bellingham, WA	Seattle, WA
Ephrata, WA	Seattle, WA
Melbourne, FL	St. Petersburg, FL
Albany, GA	Macon, GA
Myrtle Beach, SC	Anderson, SC
Alexandria, LA	DeRidder, LA
College Station, TX	Conroe, TX
Abilene, TX	Ft. Worth, TX
Childress, TX	Ft. Worth, TX
Montague, CA [1]	Rancho Murieta, CA
Blythe, CA	Riverside, CA
Daggett, CA	Riverside, CA
Lovelock, NV	Reno, NV
Chanute, KS	Wichita, KS
Wilkes-Barre, PA	Williamsport, PA

FISCAL YEAR 1989

FSS	*AFSS*
Decatur, IL	St. Louis, MO
Grand Island, NE	Columbus, NE
North Platte, NE	Columbus, NE
Cincinnati, OH	Dayton, OH
Monroe, LA	DeRidder, LA
Dalhart, TX	Ft. Worth, TX
Imperial, CA	San Diego, CA
Trinidad, CO	Denver, CO
Dickinson, ND	Grand Forks, ND
Pelston, MI	Lansing, MI
Dyersburg, TN	Jackson, TN
Lubbock, TX	Ft. Worth, TX
Ponca City, OK	McAlester, OK
Florence, SC	Anderson, SC
Rochester, MN	Princeton, MN
Wichita Falls, TX	Ft. Worth, TX
Lebanon, NH	Bangor, ME
Ft. Myers, FL	Miami, FL
Vero Beach, FL	Miami, FL
Thermal, CA	Riverside, CA
South Bend, IN	Terre Haute, IN

FISCAL YEAR 1990

FSS	*AFSS*
Cedar Rapids, IA	Ft. Dodge, IA
Springfield, MO	Columbia, MO
Rockford, IL	Kankakee, IL
Findlay, OH	Cleveland, OH
Alexandria, MN	Princeton, MN
Minot, ND	Grand Forks, ND
Eau Claire, WI	Green Bay, WI
Savannah, GA	Macon, GA
Shreveport, LA	DeRidder, LA
Tulsa, OK	McAlester, OK
Dallas, TX	Forth Worth, TX
Charleston, SC	Anderson, SC
Garden City, KS	Wichita, KS
Teterboro, NJ	Millville, NJ
Pittsburgh, PA	Altoona, PA
Philadelphia, PA	Williamsport, PA
Erie, PA	Altoona, PA
Scotts Bluff, NE	Columbus, NE

[1] FSS decommissioned prior to commissioning of AFSS.

In reference to the cost of consolidations: The FSS Modernization Program was approved on the basis of total life-cycle cost and this estimate assumed that the total program would be in place before true benefits were realized. Typically, consolidation of an FSS results in some cost savings/avoidance; however small. The cost to consolidate an FSS averages $150,000 in F&E; and the average cost to relocate an employee is $32,300. The staffing at FSS's ranges from five specialists at a small Level I facility, to possibly 50 specialists at the Level III FSS. Currently, some 62 percent of our workforce has been reassigned to one of the facilities in the 46 AFSS configuration.

FSS CONSOLIDATIONS REMAINING

Mr. COUGHLIN. Please also update the same information on FSS consolidations remaining, as shown on pages 787–791 of last year's hearing record.

[The information follows:]

FISCAL YEAR 1990

FSS	*AFSS*
Hibbing, MN	Princeton, MN
Redwood Falls, MN	Green Bay, WI
Marquette, MI	McMinnville, OR
North Bend, OR	Seattle, WA
Wenatchee, WA	St. Petersburg, FL
Orlando, FL	Ft. Worth, TX
Amarillo, TX	Reno, NV
Elko, NV	St. Louis, MO
Quincy, IL	Conroe, TX
Lufkin, TX	Altoona, PA
Johnstown, PA	

FISCAL YEAR 1991

FSS	*AFSS*
Bettles, AK	Fairbanks, AK
Northway, AK	Fairbanks, AK
Tanana, AK	Fairbanks, AK
Big Delta, AK	Fairbanks, AK
Yakutat, AK	Juneau, AK
Homer, AK	Kenai, AK
McGrath, AK	Kenai, AK
Farewell, AK	Kenai, AK
Tuscaloosa, AL	Anniston, AL
Harrison, AR	Jonesboro, AR
Little Rock, AR	Jonesboro, AR
Pine Bluff, AR	Jonesboro, AR
Crescent City, CA	Oakland, CA
Lancaster, CA	Riverside, CA
Atlanta, GA	Macon, GA
Bowling Green, KY	Louisville, KY
Paducah, KY	Louisville, KY
Billings, MT	Great Falls, MT
Bozeman, MT	Great Falls, MT
Butte, MT	Great Falls, MT
Cut Bank, MT	Great Falls, MT
Lewistown, MT	Great Falls, MT
Livingston, MT	Great Falls, MT
Miles City, MT	Great Falls, MT
Missoula, MT	Great Falls, MT
Poughkeepsie, NY	Islip, NY
Bradford, PA	Altoona, PA
Du Bois, PA	Altoona, PA
Bristol, TN	Nashville, TN
Crossville, TN	Nashville, TN
Alice, TX	San Angelo, TX
San Antonio, TX	San Angelo, TX
Wink, TX	San Angelo, TX
Newport News, VA	Lessburg, VA
Laramie, WY	Casper, WY
Rawlins, WY	Casper, WY
Rock Springs, WY	Casper, WY
Sheridan, WY	Casper, WY
Worland, WY	Casper, WY

FISCAL YEAR 1992

FSS	*AFSS*
Barrow, AK	Fairbanks, AK
Deadhorse, AK	Fairbanks, AK
Kotzebue, AK	Fairbanks, AK
Bethel, AK	Kenai, AK
Cold Bay, AK	Kenai, AK
Dillingham, AK	Kenai, AK
Iliamna, AK	Kenai, AK

FSS	*AFSS*
King Salmon, AK	Kenai, AK
Cordova, AK	Juneau, AK
Ketchikan, AK	Juneau, AK
Sitka, AK	Juneau, AK
Elmira, NY	Buffalo, NY
Salisburg, MD	Leesburg, VA
Bluefield, WV	Elkins, WV
Huntington, WV	Elkins, WV
Martinsburg, WV	Elkins, WV
Morgantown, WV	Elkins, WV
Youngstown, OH	Cleveland, OH
Eagle, CO	Denver, CO
Grand Junction, CO	Denver, CO
Birmingham, AL	Anniston, AL
Dothan, AL	Anniston, AL
Mobile, AL	Anniston, AL
Montgomery, AL	Anniston, AL
Muscle Schoals, AL	Anniston, AL
London, KY	Louisville, KY
Elizabeth City, NC	Raleigh, NC
Hickory, NC	Raleigh, NC
New Bern, NC	Raleigh, NC
Rocky Mount, NC	Raleigh, NC
Knoxville, TN	Nashville, TN
El Dorado, AR	Jonesboro, AR
Fayetteville, AR	Jonesboro, AR
Gallup, NM	Albuquerque, NM
Las Vegas, NM	Albuquerque, NM
Austin, TX	San Angelo, TX
McAllen, TX	San Angelo, TX
Midland, TX	San Angelo, TX
Tuscon, AZ	Prescott, AZ
Salinas, CA	Oakland, ,CA
Ukiah, CA	Oakland, CA
Bakersfield, CA	Riverside, CA

FISCAL YEAR 1993

FSS	*AFSS*
Nome, AK	Fairbanks
Anchorage, AK	Kenai
Gulkana, AK	Kenai
Palmer, AK	Kenai
Talkeetna, AK	Kenai
Utica, NY	Buffalo
Charlestown, WV	Elkins
Parkersburg, WV	Elkins
Aberdeen, SD	Huron
Pierre, SD	Huron
Rapid City, SD	Huron
Watertown, SD	Huron
Burley, ID	Boise
Idaho Falls, ID	Boise
Redmond, OR	McMinville
Spokane, WA	Seattle
Walla Walla, WA	Seattle
Crestview, FL	Gainesville
Jacksonville, FL	Gainesville
Pensacola, FL	Gainesville
Tallahassee, FL	Gainesville
Jackson, MS	Greenwood
McComb, MS	Greenwood
Meridian, MS	Greenwood
Carlsbad, NM	Albuquerque
Deming, NM	Albuquerque
El Paso, TX	Albuquerque, NM
Roswell, NM	Albuquerque
Truth or Consequences, NM	Albuquerque
Tucumcari, NM	Albuquerque
Santa Barbara, CA	Hawthorne
Arcata, CA	Oakland
Fresno, CA	Rancho Murieta
Sacramento, CA	Rancho Murieta

FISCAL YEAR 1994

FSS	*AFSS*
Marysville, CA	Rancho Murieta
Red Bluff, CA	Rancho Murieta
Stockton, CA	Rancho Murieta

AFSS'S TO BE COMMISSIONED

Mr. COUGHLIN. Please also update the listing of AFSSs to be commissioned, as shown on page 792 of last year's hearing record.

[The information follows:]

AFSS	Date	System type	MIFC commissioning date
Jonesboro, AR	3Q FY 90	LABS	3Q FY 91
Gainesville, FL	4Q FY 90	LABS	2Q FY 93
Albuquerque, NM	4Q FY 90	LABS	1Q FY 93
Greenwood, MS	4Q FY 90	LABS	2Q FY 93
Rancho Murieta, CA	4Q FY 90	LABS	1Q FY 93
Buffao, NY	1Q FY 91	LABS	2Q FY 92
Great Falls, MT	1Q FY 91	MIFC	1Q FY 91
Casper, WY	1Q FY 91	MIFC	1Q FY 91
Boise, ID	2Q FY 91	LABS	3Q FY 92
Fairbanks, AK	2Q FY 91	MIFC	2Q FY 91
Juneau, AK	2Q FY 91	MIFC	2Q FY 91
Elkins, WV	2Q FY 91	LABS	2Q FY 92

AFSS	Date	System type	MIFC commissioning date
Oakland, CA	1Q FY 92	MIFC	1Q FY 92
Honolulu, HI	4Q FY 92	LABS	3Q FY 93
San Juan, PR	3Q FY 93	MIFC	3Q FY 93

FSS'S REMOVED FROM CONSOLIDATION LIST

Mr. COUGHLIN. Please also update the list of FSSs removed from the consolidation list as shown on pages 792 and 793 of last year's hearing record.

[The information follows:]

Fiscal year	New date	Reason for delay
FY 1987: Youngstown, OH	1Q FY 92	Deferred until MIFC at Cleveland, OH.
FY 1988: Salisbury, MD	2Q FY 92	Deferred by House Subcommittee (MIFC at Leesburg, VA.
Johnstown, PA	4Q FY 90	Deferred until Non-Federal Tower Available.
Briston, TN	4Q FY 91	Deferred until MIFC at Nashville, TN.
Crossville, TN	4Q FY 91	Deferred until MIFC at Nashville, TN.
FY 1989:		
Findlay, OH	1Q FY 90	Funding shortfall contract weather.
North Bend, OR	4Q FY 90	Do.
Minot, ND	1Q FY 90	Do.
Eau Claire, WI	1Q FY 90	Do.
Wenatchee, WA	4Q FY 90	Do.
FY 1990: Marquette, MI	3Q FY 90	Recommendation Senate Report 101-212.

WEATHER GRAPHICS DISPLAY SYSTEM

Mr. COUGHLIN. You are requesting $2 million to lease interim weather graphics display systems. However, there doesn't appear to be any F&E funding requested for the purchase of a new national weather graphics system, as had been previously planned.

Has FAA's acquisition strategy for a nationwide system changed?

Mr. POLLARD. Our strategy has not changed. The fiscal year 1990 report language restricted us from purchasing a national weather graphic system. Subsequently, that restriction was lifted and we do not have any dollars in our fiscal year 1991 request. However, we will be looking for funding in 1992.

Mr. COUGHLIN. Which specific FSSs will benefit from the requested $2 million, and why were these specific sites chosen over others?

[The information follows:]

The requested funding is essential to provide interim systems for the 7 AFSS's that will be commissioned in FY 1991 and to maintain/expand the interim systems that are in use at the 46 AFSS's that are currently operational. This interim funding is essential because the FY 1990 Report language restricted funding for the national weather graphic display system. The 7 AFSS's that will get interim systems in FY 1991 are as follows: Fairbanks, AK; Juneau, AK; Boise, ID; Buffalo, NY; Great Falls, MT; Elkins, WV; and Casper, WY.

WEATHER GRAPHICS FUNDING BREAKDOWN

Mr. COUGHLIN. For the record, provide a breakdown, by site, of the fiscal year 1991 budget request for this project.

[The information follows:]

Our request for $1,529,000 covers the following:

Improve FSS:
  Fort Worth, Texas—Additional weather graphics ($68,445).
  Conroe, Texas—Dedicated PC for advanced 800 telco ($5,687).
  San Angelo, Texas—Additional weather graphics ($68,445).
  Conroe, Texas—Additional weather graphic ($68,445).
  San Angelo, Texas—Modification to building ($67,990).
Relocate RCO:
  Koyuk, Alaska ($554,744).
  Buckland, Alaska ($195,244).
In Service Engineering ($500,000).

WEATHER MESSAGE SWITCHING CENTER CONTRACT

Mr. COUGHLIN. Your justification requests $5 million for additional training, spares, and contractor travel for the Weather Message Switching Center (WMSC) replacement. It states that these were "unfunded contract line items." When was this contract signed, and why were these items left unfunded?

Mr. POZESKY. Mr. Coughlin, the contract was signed on July 29, 1988. The items were left unfunded because the maintenance philosophy hadn't been settled on how to maintain the system.

Since that time we have decided on the maintenance philosophy, a mix of contractor and government spares. In order to do the training necessary for the government folks and to do some initial sparing, we are requesting $1.9 million of the $5 million in this request directed at that need.

Mr. COUGHLIN. The justification also speaks of new requirements to finance engineering change orders and FAA Technical Center support. What are these new requirements, where are they documented, and by whom?

[The information follows:]

The requirements for new and revised weather product definitions, retention times and format change are identified in an Office of the Federal Coordinator for Meteorological Services and Supporting Research document dated July 1989 and were not specified in the WMSCR solicitation. In addition, new FAA orders and directives require establishment of a system engineering and configuration control facility at the FAA Technical Center. These orders and directives mandated a facility that would provide a means of simulating operational problems and testing system updates without impacting operational capability or degrading readiness of services to users. These new requirements will be documented as part of the WMSCR specification.

DUAT PROJECT

Mr. COUGHLIN. You are requesting $15 million to continue the DUAT project. You expected initial service to begin in September 1989 (page 795). Did you meet that schedule?

[The information follows:]

No, the September schedule was changed to October 23 to accommodate NADIN systems changes.

Mr. COUGHLIN. Additional leasing costs are stated in options to the DUAT contract. What is the contract option price for fiscal year 1991 services, and how does that compare to the $15 million requested?

[The information follows:]

The planned contract option year price for fiscal year 1991 services is $10,897,000. This would provide 30 percent of the FAA forecasted demand. Planned enhancements and quality monitoring support costs would add $4,103,000. The total would be $15 million.

VOR/DME/VORTAC COST BREAKDOWN

Mr. COUGHLIN. Please provide a breakdown of your $29.4 million request for VOR/DME, similar to the information presented on page 796 of last year's hearing record.

[The information follows:]

Equipment to be provided: Tactical Air Navigation (TACAN) antennas and Distance Measuring Equipment.

LOW POWER TACAN ANTENNAS

SITE LOCATION	ESTIMATED DELIVERY DATE	ESTIMATED OPERATIONAL DATE	COST
1. COLD BAY, AK	7/93	8/93	$153,410
2. KING SALMON, AK	7/93	8/93	$153,410
3. SISTER ISLAND, AK	7/93	8/93	$153,410
4. YAKUTAT, AK	7/93	8/93	$153,410
5. BUTLER, MO	7/93	8/93	$153,410
6. BURLINGTON, IA	7/93	8/93	$153,410
7. CEDAR RAPIDS, IA	8/93	9/93	$153,410
8. DES MOINES, IA	8/93	9/93	$153,410
9. DOGWOOD, MO	8/93	9/93	$153,410
10. FORT DODGE, IA	8/93	9/93	$153,410
11. GOODLAND, KS	8/93	9/93	$153,410
12. HILL CITY, KS	8/93	9/93	$153,410
13. IOWA CITY, IA	9/93	10/93	$153,410
14. LINCOLN, NE	9/93	10/93	$153,410
15. OMAHA, NE	9/93	10/93	$153,410
16. SALINA, KS	9/93	10/93	$153,410
17. SIOUX CITY, IA	9/93	10/93	$153,410
18. CALVERTON, NY	9/93	10/93	$153,410
19. DEER PARK, NY	10/93	11/93	$153,410
20. ERIE, PA	10/93	11/93	$153,410
21. LAKE HENRY, PA	10/93	11/93	$153,410
22. TIDIOUTE, PA	10/93	11/93	$153,410
23. DARWIN, MN	10/93	11/93	$153,410
24. IRONWOOD, MI	10/93	11/93	$153,410
25. JANESVILLE, WI	11/93	12/93	$153,410
26. JEFFERSON, OH	11/93	12/93	$153,410
27. LANSING, MI	11/93	12/93	$153,410
28. LITCHFIELD, MI	11/93	12/93	$153,410
29. MADISON, WI	11/93	12/93	$153,410
30. MANSFIELD, OH	11/93	12/93	$153,410
31. MOLINE, IL	12/93	1/94	$153,410
32. MUSKEGON, MI	12/93	1/94	$153,410
33. SAGINAW, MI	12/93	1/94	$153,410
34. WILLISTON, ND	12/94	1/94	$153,410
35. GARDNER, MA	12/94	1/94	$153,410
36. MANCHESTER, NH	12/93	1/94	$153,410
37. CHEROKEE, WY	1/94	2/94	$153,410
38. DOUGLAS, WY	1/94	2/94	$153,410
39. NEAH BAY, WA	1/94	2/94	$153,410
40. PENDLETON, OR	1/94	2/94	$153,410
41. SEATTLE, WA	1/94	2/94	$153,410
42. YAKIMA, WA	1/94	2/94	$153,410
43. JACKSONVILLE, FL	2/94	3/94	$153,410
44. KEY WEST, FL	2/94	3/94	$153,410
45. LAKELAND, FL	2/94	3/94	$153,410
46. MIAMI, FL	2/94	3/94	$153,410
47. TAYLOR, FL	2/94	3/94	$153,410
48. W PALM BEACH, FL	2/94	3/94	$153,410
49. WHITE CLOUD, MS	3/94	4/94	$153,410
50. WILMINGTON, NC	3/94	4/94	$153,410
51. BLUE RIDGE, TX	3/94	4/94	$153,410
52. BORGER, TX	3/94	4/94	$153,410

SITE LOCATION	ESTIMATED DELIVERY DATE	ESTIMATED OPERATIONAL DATE	COST
53. DALHART, TX	3/94	4/94	$153,410
54. MIDLAND, TX	3/94	4/94	$153,410
55. SCURRY, TX	4/94	5/94	$153,410
56. FELLOWS, CA	4/94	5/94	$153,410
57. GOFFS, CA	4/94	5/94	$153,410
58. GORMAN, CA	4/94	5/94	$153,410
59. MINA, NV	4/94	5/94	$153,410
60. MORMON SEA, CA	4/94	5/94	$153,410
61. NIMITZ, GU	5/94	6/94	$153,410
62. PAGO PAGO, AS	5/94	6/94	$153,410
63. WILSON CREEK, NV	5/94	6/94	$153,410
64. BIG SPRING, TX	5/94	6/94	$153,410
65. AUSTIN, TX	5/94	6/94	$153,410
66. BISCAYNE, FL	5/94	6/94	$153,410
67. NABB, IN	6/94	7/94	$153,410
68. GULFPORT, MS	6/94	7/94	$153,410
69. NORTH PLATTE, NE	6/94	7/94	$153,410
70. LUCIN, UT	6/94	7/94	$153,410
71. HARRISBURG, PA	6/94	7/94	$153,410
72. PUEBLO, CO	6/94	7/94	$153,410
73. LINDEN, VA	7/94	8/94	$153,410
74. HOPEWELL, VA	7/94	8/94	$153,410
75. COLORADO SPRINGS, CO	7/94	8/94	$153,410
76. MAPLES, MO	7/94	8/94	$153,410
77. KOKOMO, IN	7/94	8/94	$153,410
78. POGGI, CA	7/94	8/94	$153,410
79. HENDERSON, WV	8/94	9/94	$153,410
80. EATON, MS	8/94	9/94	$153,410
81. ALBANY, NY	8/94	9/94	$153,410
82. MILFORD, UT	8/94	9/94	$153,410
83. KINGSTON, NY	8/94	9/94	$153,410
84. MAXWELL, CA	8/94	9/94	$153,410
85. LAWRENCEVILLE, VA	9/94	10/94	$153,410
86. MILTON, PA	9/94	10/94	$153,410
87. RICHMOND, IN	9/94	10/94	$153,410
88. TOBE, CO	9/94	10/94	$153,410
89. PAWLING, NY	9/94	10/94	$153,410
90. HAMILTON, AL	9/94	10/94	$153,410
91. MUSCLE SHOALS, AL	10/94	11/94	$153,410
92. HUNTSVILLE, AL	10/94	11/94	$153,410
93. BELLAIRE, OH	10/94	11/94	$153,410
94. ROSWELL, NM	10/94	11/94	$153,410
95. WHITE CLOUD, MI	10/94	11/94	$153,410
96. WILMINGTON, NC	10/94	11/94	$153,410
97. MORGAN MESA, CA	11/94	12/94	$153,410
98. EAU CLAIRE, WI	11/94	12/94	$153,410
99. PAHOKEE, FL	11/94	12/94	$153,410
100. WILKES-BARRE, PA	11/94	12/94	$153,410
101. MYRTLE BEACH, SC	11/94	12/94	$153,410
102. PORTEVILLE, CA	11/94	12/94	$153,410
103. FAA ACADEMY, OK	12/94	1/95	$352,276
		TOTAL	$16,000,096

DME

SITE LOCATION	ESTIMATED DELIVERY DATE	ESTIMATED OPERATIONAL DATE	LOCATION COSTS
1. ALTOONA, PA	5/93	6/93	$300,000
2. CLARKSBURG, WV	5/93	6/93	$300,000
3. ALLEN CO., OH	5/93	6/93	$300,000
4. BLOOMINGTON, IL	5/93	6/93	$300,000
5. BURLINGTON, WI	5/93	6/93	$300,000
6. ALLENDALE, SC	5/93	6/93	$300,000
7. CECIL, FL	6/93	7/93	$300,000
8. CLARKSVILLE, TN	6/93	7/93	$300,000
9. DANVILLE, VA	6/93	7/93	$300,000
10. DELANCEY, NY	6/93	7/93	$300,000
11. CIRCLEVILLE, OH	6/93	7/93	$300,000
12. GALESBURG, IL	6/93	7/93	$300,000
13. GRAND RAPIDS, MI	7/93	8/93	$300,000
14. ELIZABETH CITY, NC	7/93	8/93	$300,000
15. FRANKFORT, KY	7/93	8/93	$300,000
16. FULTON COUNTY, GA	7/93	8/93	$300,000
17. FRANKLIN, PA	7/93	8/93	$300,000
18. FREDRICK, MD	7/93	8/93	$300,000
19. GRANTSBURG, WI	8/93	9/93	$300,000
20. JACKSONVILLE, FL	8/93	9/93	$300,000
21. KANKAKEE, IL	8/93	9/93	$300,000
22. JACKSON, TN	8/93	9/93	$300,000
23. LAUREL, MS	8/93	9/93	$300,000
24. MELBOURNE, FL	8/93	9/93	$300,000
25. HAGERSTOWN, MD	9/93	10/93	$300,000
26. HAZELTON, PA	9/93	10/93	$300,000
27. KENOSHA, WI	9/93	10/93	$300,000
28. LACROSSE, WI	9/93	10/93	$300,000
29. SHEBOYGAN, WI	9/93	10/93	$300,000
30. MT. VERNON, FL	9/93	10/93	$300,000
31. NATCHEZ, MS	10/93	11/93	$300,000
32. NEW BERN, NC	10/93	11/93	$300,000
33. MONTEBELLO, VA	10/93	11/93	$300,000
34. N.PHILADELPHIA, PA	10/93	11/93	$300,000
35. WEST BEND, WI	10/93	11/93	$300,000
36. WOLF LAKE, IN	10/93	11/93	$300,000
37. YANKTON, SD	11/93	11/93	$300,000
38. POMPANO BEACH, FL	11/93	12/93	$300,000
39. SAUFLEY, FL	11/93	12/93	$300,000
40. TUPELO, MS	11/93	12/93	$300,000
		TOTAL	$12,000,000

Navigation Systems Improvement - Various locations 1,440,800
(Convert VOR to high altitude facility - 4 locations - $48,766)
(Est/add DME to VOR - 2 locations - $584,594)
(Est VOR test signal - 1 location - $57,440)
(In service engineering support - $750,000)

GLOBAL POSITIONING SYSTEM PROGRAM

Mr. Coughlin. On page 82, you are requesting $800,000 to begin development of a system to determine when the DOD is degrading the signal coming from its GPS satellites. As currently stated in the Federal Radionavigation Plan and DOD policy, under what conditions would DOD degrade that signal?

Mr. Pozesky. Mr. Coughlin, I need to say that this is the new start, a new start in our budget for GPS. FAA is exploring ways in which the GPS system can be brought to bear, to air traffic control.

We heard in the past the charge that FAA wasn't taking advantage of satellites. Well, we are taking advantage of satellites. There are five separate F&E items in this year's budget that are satellite based.

To answer your question directly, the DOD is not going to make the precision signal available to the civil community. They will make the so-called limited accuracy system available constantly, which will provide accuracy to 100 meters. This money is to do the design and development work and the planning and the specification to begin the development and implementation of a monitoring system that is going to be necessary to allow GPS use as a nonprecision navigation aid throughout the ATC system.

Mr. Coughlin. What is the effect on civil aviation if pilots are not aware that the signal has been degraded?

Mr. Pozesky. It could be a severe safety impact. The purpose of this system is to provide an early alert to the pilot of a degradation in GPS signal.

The 100-meter accuracy is quite adequate for many civil applications. So it is not that degradation that we worry about. It is a more fundamental problem because the satellite is inoperable; that we need to alert the pilot about immediately.

SITE LOCATIONS FOR GPS HARDWARE

Mr. Coughlin. What type of hardware do you envision for this monitoring system, and at which locations is it needed?

[The information follows:]

GPS monitors will be similar in capability to monitors used by DOD to control the system but will be built with more current technology. Communication satellite uplink facilities will be "off-the-shelf" units adapted to meet FAA requirements.

Six monitor locations are planned (Honolulu, Anchorage, Los Angeles, Miami, Boston, and Frobisher Bay, Canada) with satellite uplinks at Los Angeles and Miami.

COST SHARING FOR GPS

Mr. Coughlin. Since in the event of war, a large percentage of our commercial aviation fleet would be used for military airlift under the Civil Reserve Air Fleet (CRAF) concept, and since the GPS signal is most likely to be degraded during wartime, why doesn't DOD pay for this capability?

Mr. Stoer. The DOD currently has that issue under study. That is not a cost in our budget currently.

MICROWAVE LANDING SYSTEM DEMONSTRATION

Mr. **Coughlin**. Can you update us on the status of the MLS demonstration program today?

Mr. **Pozesky**. Yes, sir. We have nine separate tasks under way. Probably the hardest one is to deal squarely with the problem of frequency interference to be sure that there is a forcing function from a frequency problem to move us toward MLS. We have engaged MIT for that effort. Their effort is currently ongoing, but they have confirmed to us that there is indeed a national frequency problem in the ILS ban that needs to be studied.

We have done 747 simulator studies on wide-body curved approaches with airline crews, and have confirmed the feasibility of curved approaches.

Another important role in the MLS design that we have done is a capacity enhancing simulation in the New York area. We are working very closely with ATA and a host of over 80 industry reps, in all of these programs, and we hope to be able to report to the committee this time next year at a hearing, the results of most if not all of these in demonstration programs.

Mr. **Coughlin**. What are your specific plans for next year?

Mr. **Pozesky**. To complete the demonstration program. To reach consensus with the industry on the need for long-term precision approach. We will be issuing the RFP for the category II and category III dual production system design. We will issue that in the next few weeks.

We will hope to award that after the hearings next year, and we hope by this time next year to have rebuilt the consensus among the user community on the need and the proper approach for a transition to MLS.

MLS DEMONSTRATION PROGRAM FUNDING REQUEST

Mr. **Coughlin**. You are requesting $35.2 million for this program in fiscal year 1991. Last year, you said you would only need $7.6 million in fiscal year 1991. Why is there such a difference?

[The information follows:]

The Demonstration/Evaluation program funding increase is only $1.5 million, which is needed to purchase an additional MLS ground station for demonstration project #4, General Aviation, Commuter Capacity Enhancement. The additional funds are required to initiate dual contractor prototype design of CAT III systems. This procurement is not for production.

Procurement of prototype CAT III MLS systems must be undertaken to provide early application of benefits indicated in preliminary demonstration program results. Production units will not be manufactured until the demonstration program is complete.

MLS DEMONSTRATION—FUNDING DETAILS

Mr. **Coughlin**. For the record, please provide a detailed breakdown of your fiscal year 1991 budget request for MLS, and include a breakdown of costs for the demonstration program and for development of category III MLS.

[The information follows:]

	Millions
Contractor 1 (Prototype Cat II/III MLS)	$11.0
Contractor 2 (Prototype Cat II/III MLS)	11.0

	Millions
Program engineering support	4.1
Demonstration program	9.1
Total	35.2

MLS DEMONSTRATION PROGRAM SCHEDULE

Mr. COUGHLIN. Also for the record, provide a schedule for the MLS demonstration program, similar to the one shown on page 800 of last year's hearing record, and explain any schedule changes compared to last year's schedule.

[The information follows:]

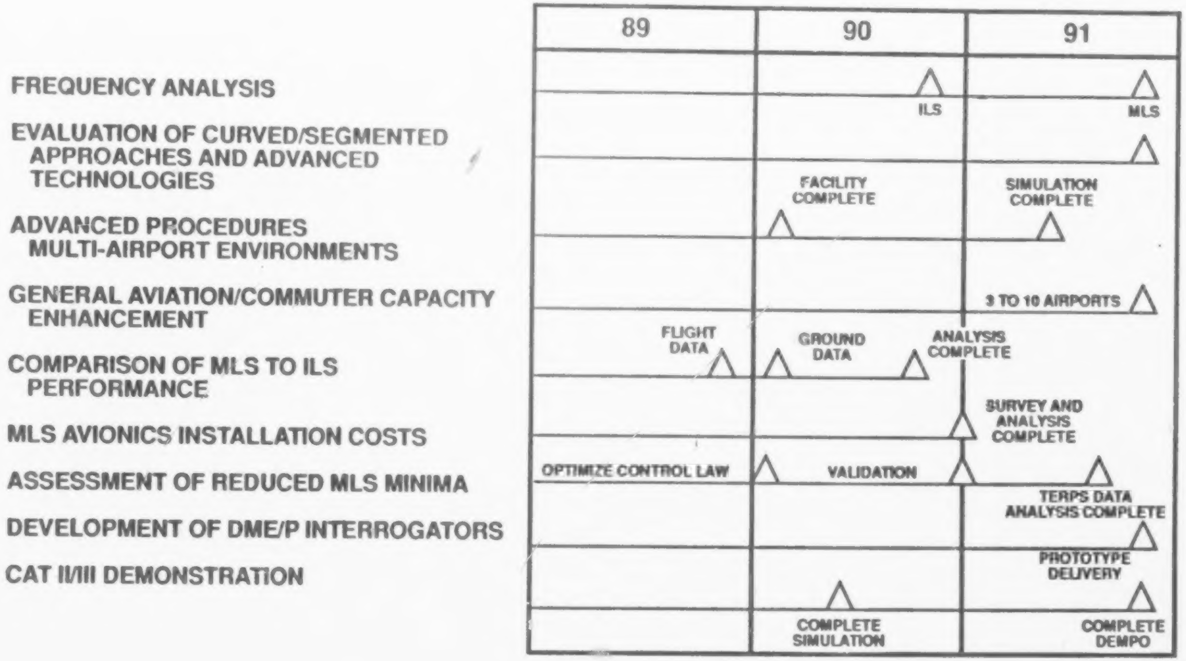
Three changes have been made to the MLS Demonstration/Evaluation Program schedule provided in FY 1990.

Project #1, Frequency Assessment: Completion date has been revised to late 1991 to permit a thorough, credible study by the Massachusetts Institute of Technology.

Project #2, Wide Body Curved Approach Demonstrations: Project will be completed in late 1991, rather than late 1990.

Project #8, Development of DME/P Interrogators: Due to delays in contract award, completion date is now scheduled for late 1991.

DEMONSTRATION PROJECTS SCHEDULE



MLS PROTOTYPE IMPLEMENTATION SCHEDULE

Mr. COUGHLIN. Please also update the MLS prototype implementation schedule, as shown on page 801 of last year's hearing record, by adding a current estimate to the estimate provided last year.

[The information follows:]

The CAT II/III Design Competition and Prototype Production with the total option package is expected to cost $125.2 million.

Schedule:	
Issue RFP	July-August 1990.
Award contracts	June 1991.
Start reliability demonstration and shakedown testing	May 1995.
Complete shakedown testing	January 1996.
Complete reliability demonstration	October 1996.

HAZELTINE MLS CONTRACT

Mr. COUGHLIN. Last year, you were actively pursuing resolution of problems in closing out the Hazeltine MLS contract. What is the status of that effort today?

Mr. POZESKY. We issued a formal notice of termination to Hazeltine on August 7, 1989. The contract is being litigated by the Justice Department. There is still some effort by another manufacturer to buy out the Hazeltine product line. There have been three or four such attempts thus far. None of them have yielded fruition.

There is currently another one. I need to tell you that any effort along those guideline would have to be approved by the Justice Department and the FAA.

Mr. COUGHLIN. Specifically, how much has the government agreed to pay to close out that contract, how much funding have you recovered under that contract, and when will all equipment and related materials be turned over to the government?

Mr. POZESKY. It is the government's position that we have the right to recover all funds expended on the contract, $42 million to date, and all equipment. Hazeltine has filed suit against that, and no recovery can be made until the suit and Hazeltine's claims are adjudicated. This is in the process with the Justice Department, but as you know, this can take several years to complete.

Mr. COUGHLIN. Has FAA entered into negotiations with any third parties interested in taking over the Hazeltine contract? If so, what is the status of those negotiations?

[The information follows:]

At this time, the FAA has not entered into negotiations with any third party. However, the FAA is aware that another party is interested in buying the Hazeltine product line. This company is negotiating with the Hazeltine Corporation. Any agreement reached between the companies would have to be approved by the FAA and the Justice Department.

MLS CAT I IMPLEMENTATION PLAN

Mr. COUGHLIN. Please update for the record your MLS CAT I implementation plan, as shown on pages 802 through 808 of last year's hearing record.

[The information follows:]

The FAA's contract for Category I MLS's with the Hazeltine Corporation has been terminated. To partially replace the systems not delivered under that contract, the FAA has purchased two Category I MLS ground stations (to be installed at Chicago's Midway Airport and New York's JFK Airport), and plans to purchase 2-26 more Category I ground stations next year. However, the bulk of the MLS ground stations will have Category II/III capability. Current plans call for these systems to be prototyped by 1994 and produced and installed beginning in 1995. Locations for the systems are still to be determined.

COMMERCIAL AWOS REQUIREMENTS

Mr. COUGHLIN. Please update for the record the AWOS site listing and corresponding installation data as shown on pages 811 through 814 of last year's hearing record.

[The information follows:]

COMMERCIAL AWOS
LOCATIONS AND SCHEDULE

ID	AIRPORT	CITY	ST	PROJECTED INSTALLATION
FNL	FORT COLLINS-LO	FORT COLLINS	CO	07/30/90
GXY	GREELEY-WELD COUNTY	GREELEY	CO	07/30/90
ARG	WALNUT RIDGE REGION	WALNUT RIDGE	AR	07/30/90
HDN	YAMPA VALLEY	HAYDEN	CO	08/06/90
FLP	MARION COUNTY	FLIPPIN	AR	08/13/90
W98	CHESTERFIELD COUNTY	CHESTERFIELD	VA	08/13/90
GUC	GUNNISON COUNTY	GUNNISON	CO	08/20/90
MTW	MANITOWOC COUNTY	MANITOWOC	WI	08/20/90
MNM	MENOMINEE-MARIN	MENOMINEE	MI	08/20/90
OCH	EAST TEXAS REGIONAL	NACOGDOCHES	TX	08/27/90
PVG	HAMPTON ROADS	PORTSMOUTH	VA	08/27/90
IWD	GOGEBIC COUNTY	IRONWOOD	MI	08/27/90
F60	McGREGOR MUNICIPAL	McGREGOR	TX	09/04/90
CIU	CHIPPEWA COUNTY	SAULT STE MARIE	MI	09/04/90
ESC	DELTA COUNTY	ESCANABA	MI	09/10/90
SUE	DOOR COUNTY CHE	STURGEON BAY	WI	09/10/90
SGU	SAINT GEORGE	SAINT GEORGE	UT	09/17/90
WVL	WATERVILLE ROBE	WATERVILLE	ME	09/17/90
PQI	NORTHERN MAINE	PRESQUE ISLE	ME	09/17/90
PVU	PROVO MUNICIPAL	PROVO	UT	09/24/90
BLM	ALLAIRE	BELMAR-FARMI	NJ	09/24/90
BHB	HANCOCK COUNTY	BAR HARBOR	ME	09/24/90
SDP	SAND POINT	SAND POINT	AK	09/30/90
DUT	DUTCH HARBOR	DUTCH HARBOR	AK	09/30/90
PTH	PORT HEIDEN	PORT HEIDEN	AK	09/30/90
TOG	TOGIAK	TOGIAK VILLA	AK	09/30/90
ENV	WENDOVER	WENDOVER	UT	10/01/90
RKD	KNOX COUNTY REGIONAL	ROCKLAND	ME	10/09/90
RUT	RUTLAND STATE	RUTLAND	VT	10/15/90
KSM	ST MARYS	ST MARYS	AK	10/15/90
AQH	KWINHAGAK	QUINHAGAK	AK	10/15/90
HPB	HOOPER BAY	HOOPER BAY	AK	10/15/90
VDZ	VALDEZ MUNICIPAL	VALDEZ	AK	10/15/90
3G8	GENESEE COUNTY	BATAVIA	NY	10/22/90
DVL	DEVILS LAKE MUNICIP	DEVILS LAKE	ND	10/22/90
LEW	AUBURN-LEWISTON	AUBURN-LEWISTON	ME	10/22/90
JHW	CHAUTAUQUA COUNTY	JAMESTOWN	NY	10/29/90
GPZ	GRAND RAPIDS	GRAND RAPIDS	MN	10/29/90
LCI	LACONIA MUNICIPAL	LACONIA	NH	10/29/90
MYU	MEKORYUK	MEKORYUK	AK	10/30/90
WRG	WRANGELL	WRANGELL	AK	10/30/90
IIK	KIPNUK	KIPNUK	AK	10/30/90
PSG	PETERSBURG	PETERSBURG	AK	10/30/90

COMMERCIAL AWOS
LOCATIONS AND SCHEDULE

ID	AIRPORT	CITY	ST	PROJECTED INSTALLATION
ISM	KISSIMMEE MUNICIPAL	KISSIMMEE	FL	03/21/90
GAD	GADSEN MUNICIPAL	GADSEN	AL	03/26/90
L66	CORONA MUNICIPAL	CORONA	CA	03/27/90
SGJ	ST AUGUSTINE	ST AUGUSTINE	FL	03/28/90
OTH	NORTH BEND MUNICIPA	NORTH BEND	OR	04/02/90
T98	SAN MARCOS MUNICIPAL	SAN MARCOS	TX	04/02/90
CMA	CAMARILLO	CAMARILLO	CA	04/09/90
49J	HILTON HEAD	HILTON HEAD ISLAN	SC	04/09/90
CEC	JACK MC NAMARA	CRESCENT CITY	CA	04/16/90
DYR	DYERSBURG MUNICIPAL	DYERSBURG	TN	04/23/90
GTR	GOLDEN TRIANGLE	COLUMBUS/W P	MS	04/23/90
RDM	REDMOND/ROBERTS	REDMOND	OR	04/23/90
I26	HENDERSON CITY-COUNT	HENDERSON	KY	04/30/90
8A4	McCOLLUM	MARIETTA	GA	04/30/90
PTN	HARRY P. WILLIAM	PATTERSON	LA	05/07/90
U35	CALDWELL INDUSTRIAL	CALDWELL	ID	05/14/90
LPC	LOMPOC	LOMPOC	CA	05/14/90
GBD	GREAT BEND MUNICIPAL	GREAT BEND	KS	05/21/90
JAC	JACKSON HOLE	JACKSON	WY	05/21/90
CTB	CUT BANK MUNICIPAL	CUT BANK	MT	05/28/90
COD	E E FAUST REGIONAL	CODY	WY	05/28/90
EWK	NEWTON-CITY-COUNTY	NEWTON	KS	05/28/90
LWT	LEWISTOWN	LEWISTOWN	MT	06/04/90
RKS	ROCK SPRING	ROCK SPRING	WY	06/11/90
GDV	DAWSON-COMMUNITY	GLENDIVE	MT	06/11/90
EAR	KEARNEY MUNICIPAL	KEARNEY	NE	06/11/90
OLU	COLUMBUS MUNICIPAL	COLUMBUS	NE	06/18/90
SFZ	NORTH CENTRAL	PAWTAUCKET	RI	06/18/90
PTV	PORTERVILLE MUNICIPA	PORTERVILLE	CA	06/18/90
BID	BLOCK ISLAND ST	BLOCK ISLAND	RI	06/25/90
SIY	MONTAGUE/SISKIYOU	MONTAGUE	CA	06/25/90
VIS	VISALIA MUNICIPAL	VISALIA	CA	06/25/90
ROG	ROGERS MUNICIPAL	ROGERS	AR	07/09/90
HOO	BENTONVILLE MUNI	BENTONVILLE	AR	07/09/90
17A	GWINNETT COUNTY	LAWRENCEVILLE	GA	07/16/90
SLG	SMITH FIELD	SILOAM SPRING	AR	07/16/90
SDY	SIDNEY-RICHLAND	SIDNEY	MT	07/23/90
SGT	STUTTGART MUNICIPAL	STUTTGART	AR	07/23/90
AIZ	LEE C FINE MEMORIAL	KAISER/LAKE	MO	07/23/90
SHH	SHISHMAREF	SHISHMAREF	AK	07/30/90
SVA	SAVOONGA	SAVOONGA	AK	07/30/90
PHO	POINT HOPE	POINT HOPE	AK	07/30/90
Z60	AMBLER	AMBLER	AK	07/30/90

COMMERCIAL AWOS
LOCATIONS AND SCHEDULE

ID	AIRPORT	CITY	ST	PROJECTED INSTALLATION
	SAN MATEO MARKER	SAN MATEO	CA	02/28/89
FOD	FORT DODGE MUNICIPA	FORT DODGE	IA	05/15/89
ILE	KILLEEN MUNICIPAL	KILLEEN	TX	05/17/89
CWI	CLINTON MUNICIPAL	CLINTON	IA	05/19/89
TPL	DRAUGHON-MILLER	TEMPLE	TX	05/22/89
SQI	WHITESIDE COUNTY	STERLING ROCK	IL	07/17/89
PWT	BREMERTON NATIONAL	BREMERTON	WA	07/24/89
KLS	KELSO-LONGVIEW	KELSO	WA	07/28/89
EAT	WENATCHEE/PANGBORN	WENATCHEE	WA	07/31/89
UIN	QUINCY MUNI-BALDWIN	QUINCY	IL	08/25/89
MVN	MT VERNON-OUTLAND	MOUNT VERNON	IL	09/08/89
PVC	PROVINCETOWN MUNI	PROVINCETOWN	MA	09/15/89
ANI	ANIAK	ANIAK	AK	09/15/89
UNK	UNALAKLEET	UNALAKLEET	AK	09/15/89
GAM	GAMBELL	GAMBELL	AK	09/15/89
UKI	UKIAH MUNICIPAL	UKIAH	CA	10/31/89
HYS	HAYS MUNICIPAL	HAYS	KS	10/31/89
LBL	LIBERAL MUNICIPAL	LIBERAL	KS	10/31/89
FYU	FORT YUKON	FORT YUKON	AK	10/31/89
FDY	FINDLAY	FINDLAY	OH	10/31/89
OKK	KOKOMO MUNICIPAL	KOKOMO	IN	10/31/89
SKX	TAOS MUNICIPAL	TAOS	NM	10/31/89
SOP	MOORE COUNTY	SOUTHERN PINES	NC	10/31/89
OAJ	ALBERT J ELLIS	JACKSONVILLE	NC	10/31/89
LGD	LA GRANDE MUNICIPAL	LA GRANDE	OR	10/31/89
OXC	WATERBURY-OXFORD	OXFORD	CT	10/31/89
SFM	SANFORD MUNICIPAL	SANFORD	ME	11/09/89
CVO	CORVALLIS MUNICIPAL	CORVALLIS	OR	11/15/89
SMN	SALMON	SALMON	ID	12/13/89
S88	ARLINGTON MUNICIPAL	ARLINGTON	WA	12/22/89
EKO	ELKO MUNICIPAL	ELKO	NV	12/22/89
CGZ	CASA GRANDE	CASA GRANDE	AZ	01/09/90
LKV	LAKE COUNTRY-LAKEVIE	LAKEVIEW	OR	01/12/90
APF	NAPLES MUNICIPAL	NAPLES	FL	01/17/90
MKY	MARCO ISLAND	MARCO ISLAND	FL	01/24/90
AUO	AUBURN-OPELIKA/PITTS	AUBURN	AL	02/23/90
WJF	WILLIAM J FOX	LANCASTER	CA	02/26/90
COE	COEUR D ALENE	COEUR D ALENE	ID	03/01/90
HEZ	HARDY-ANDERS FIELD	NATCHEZ	MS	03/02/90
PIB	PINE BELT REGIONAL	LAUREL/HATTI	MS	03/07/90
T04	GEORGETOWN MUNICIPAL	GEORGETOWN	TX	03/09/90
OCF	OCALA MUNICIPAL	OCALA	FL	03/14/90
2A3	BESSEMER	BESSEMER	AL	03/19/90

COMMERCIAL AWOS
LOCATIONS AND SCHEDULE

ID	AIRPORT	CITY	ST	PROJECTED INSTALLATION
FKL	CHESS-LAMBERTON	FRANKLIN	PA	11/05/90
MKT	MANKATO MUNICIPAL	MANKATO	MN	11/05/90
W10	MANASSAS MUNICIPAL	MANASSAS	VA	11/13/90
TVF	THIEF RIVER FALLS	THIEF RIVER	MN	11/13/90
BJI	BEMIDJI-BELTRAM	BEMIDJI	MN	11/13/90
BTP	BUTLER COUNTY	BUTLER	PA	11/26/90
MHE	MITCHELL MUNICIPAL	MITCHELL	SD	11/26/90
YKN	CHAN GURNEY MUNI	YANKTON	SD	11/26/90
3G2	WASHINGTON COUNTY	WASHINGTON	PA	12/03/90
MML	MARSHALL MUNICIPAL	MARSHALL	MN	12/03/90
OTG	WORTHINGTON MUNICIP	WORTHINGTON	MN	12/03/90
FRM	FAIRMONT MUNICIPAL	FAIRMONT	MN	12/10/90
BKX	BROOKINGS MUNICIPAL	BROOKINGS	SD	12/10/90
ORL	ORLANDO EXECUTIVE	ORLANDO	FL	01/02/91
BVX	BATESVILLE REGIONAL	BATESVILLE	AR	01/07/91
LRU	LAS CRUCES INTERNAT	LAS CRUCES	NM	01/14/91
JRB	WALL STREET HELIPORT	NEW YORK	NY	01/22/91
CVN	CLOVIS MUNICIPAL	CLOVIS	NM	01/22/91
N44	ROBERT J MILLE	TOMS RIVER	NJ	02/04/91
WWD	CAPE MAY COUNTY	WILDWOOD	NJ	02/04/91
GAI	MONTGOMERY COUNTY	GAITHERSBURG	MD	02/11/91
DUJ	DU BOIS-JEFFERSON	DU BOIS	PA	02/18/91
N67	WINGS FIELD	PHILADELPHIA	PA	02/25/91
EGE	EAGLE COUNTY	EAGLE	CO	03/04/91
I28	ASHLAND-BOYD COUNTY	ASHLAND	KY	03/04/91
TAD	TRINIDAD/LAS ANIMAS	TRINIDAD	CO	03/11/91
PKB	WOOD COUNTY AIR	PARKERSBURG	WV	03/18/91
EAU	EAU CLAIRE COUNTY	EAU CLAIRE	WI	04/15/91
EEN	DILLANT-HOPKINS	KEENE	NH	04/15/91
MQT	MARQUETTE COUNTY	MARQUETTE	MI	04/22/91

ILS PROGRAM

Mr. COUGHLIN. On page 89, you are requesting $16.7 million to procure approximately 25 ILS and approach lighting systems. This is a large increase over the $9.2 million budgeted for fiscal year 1990. Why is this increase needed, and how did you arrive at the $16.7 million figure?

Mr. POZESKY. They are associated with the cost to complete the installation of 25 ILS systems and approach landing systems which were bought previously and are currently under contract.

Last year's request was only for 15 such systems.

ILS SITES

Mr. COUGHLIN. Please provide a listing of the fiscal year 1991 ILS sites, including runways, cost, and establishment criteria rating for each site, similar to the data shown on page 848 of last year's hearing record.

[The information follows:]

Airport	Runway	Criteria	Cost
Santa Ana, CA	19R	Replacement of AIL-55K	$668,000
Ft Lauderdale, FL	9L	do	668,000
Panama City, FL	14	do	668,000
Alton, IL	29	do	668,000
Decatur, IL	6	do	668,000
Chicago, IL	32R	O'Hare area safety study	668,000
Do	27R	do	668,000
Do	22R	do	668,000
Valapariso, IN	27	Replacement ALL-55K	668,000
Esler, Field, LA	26	do	668,000
Baltimore, MD	28	do	668,000
Gulfport, MS	13	do	668,000
Chadron, NE	19	Benefit/cost 1.23	668,000
Rocky Mount, NC	4	Replacement of AIL-55K	668,000
Concord, NH	35	do	668,000
Keene, NH	2	do	668,000
Laconia, NH	8	do	668,000
Las Vegas, NV	25	do	668,000
Farmingdale, NY	14	do	668,000
FAA Academy, OK		Training system	668,000
Bradford, PA	32	do	668,000
Latrobe, PA	23	do	668,000
N. Philadelphia, PA	24	do	668,000
Philadelphia, PA	27L	do	668,000
Appleton, WI	3	do	668,000

ILS REPLACEMENTS

Mr. COUGHLIN. Please also provide similar data for ILS replacements as shown on page 848 of last year's hearing record.

[The information follows:]

CATEGORY II/III

Location	Runway	Cost	Installation date
Dallas/Ft. Worth, TX	18L	$1,000,000	July 1993.
Do	17R	1,000,000	August 1993.

CATEGORY II/III—Continued

Location	Runway	Cost	Installation date
Dallas/Ft. Worth, TX	17L	1,000,000	August 1992.
Do	35R	1,000,000	August 1993.
Do	31R	1,000,000	September 1993.
Do	18R	1,000,000	Do.
Wichita, KS	01L	1,000,000	Do.
Anchorage, AK	06R	1,000,000	October 1993.
Jackson, MS	15L	1,000,000	Do.
FAA Academy, OK		1,000,000	Do.
FAA Depot, Test Bed		1,000,000	November 1993.
Bangor, ME	15	1,000,000	Do.
Boston, MA	04R	1,000,000	December 1993.
Nashville, TN	02L	1,000,000	Do.
Moisant, LA	10	1,000,000	Do.
Seattle, WA	16R	1,000,000	January 1994.
Minneapolis, MN	29L	1,000,000	Do.
Philadelphia, PA	09R	1,000,000	Do.
Laguardia, NY	22	1,000,000	February 1994.
Baltimore-Washington, MD	10	1,000,000	Do.
JFK (Kennedy), NY	13L	1,000,000	Do.
Fairbanks, AK	01L	1,000,000	March 1994.
St. Louis, MO	30R	1,000,000	Do.
Washington, DC (National)	36	1,000,000	Do.
Andrews, AFB, MD	19R	1,000,000	April 1994.

BUILDING/EQUIPMENT IMPROVEMENTS

Mr. COUGHLIN. On page 94, you are requesting $24.4 million to modernize and improve FAA buildings and equipment, a 24-percent increase over fiscal year 1990. How did you determine that such a large increase is needed, and what items account for the majority of the increase?

Mr. AQUILANO. Nine regional airway facility divisions have identified the needed improvements to the facilities. There are a variety of items that require repair, replacement or upgrading such as buildings, roofs, air-conditioning and power systems.

Mr. COUGHLIN. For the record, please provide a breakout of the fiscal year 1991 request by location and work to be performed.

[The information follows:]

Region/Facility	*Amount (millions)*
Southern:	
Atlanta, GA	$3.440
New England:	
Bangor	.138
Boston	.722
Northwest Mountain:	
Seattle, WA	1.350
Boise, ID	.445
Missoula, MT	.325
Portland, OR	.500
Spokane, WA	.175
Great Lakes:	
Minneapolis, MN	.778
Chicago, IL	1.500
Akron/Canton, OH	.297
Flint, MI	.297
Moline, IL	.297

Region/Facility	*Amount (millions)*
St. Paul, MN	.056
Western Pacific:	
Riverside, CA	.093
Grand Canyon, AZ	.226
Battle Mountain, NV	.268
San Francisco, CA	.693
Los Angeles, CA	1.300
Eastern:	
New York, NY	2.442
N. Philadelphia, PA	.044
Poughkeepsie, NY	.044
Hagerstown, MD	.022
Ithaca, NY	.022
Lewisburg, WV	.022
Charleston, WV	.050
Morgantown, WV	.022
Clarksburg, WV	.022
Binghamton, NY	.188
Harrisburg, PA	.154
Central:	
Kansas City, MO	1.505
Southwest:	
Ft. Worth, TX	1.353
El Paso, TX	1.657
Alaska:	
Anchorage, AK	.600
Buckland, AK	.057
Huslia, AK	.058
Juneau, AK	.360

The work to be performed includes, but is not limited to the following:
Earthquake Assessment and Corrective Action.
Repair/Replace Roof.
Replace Siding.
Replace Flooring.
Provide TELCO Room.
Rewiring.
Replace Nonreparable Buildings.
Improve Access Roads, Fences, Parking Areas.
Replace HVAC.
Install Improved HVAC Controls.
Insulate Partitions/Walls/Ceilings.

Mr. COUGHLIN. A footnote to the justification states that this is a "continuing requirement that is expected to average approximately $25 million per year." Would you characterize this as a level of effort project, or do you have specific approved project plans, criteria for candidacy, and priority sites?

Mr. AQUILANO. This represents the ideal recurring level of funding required to maintain the current inventory of FAA facilities. Facilities are designed for a service life of approximately 20 years without requiring major rehabilitation. The $25 million funding level will permit the modernization and upgrading of the over 8,000 facilities after their 20-year cycle and accommodate replacement of some facilities beyond repair that have exceeded their life cycle expectancy.

Facilities will be renovated on a priority basis in each region, depending on the condition of the structure and the grounds.

Mr. COUGHLIN. Could you explain the process to us or do it for the record?

Mr. AQUILANO. Glad to do it for the record.

[The information follows:]

Requirements are determined based on the number of facilities within each region that meet the criteria of this program as described in the "Program Plan for Modernization of FAA Buildings and Equipment". Each region develops its own list of priorities based on the funding available for the program in that fiscal year.

EARTHQUAKE RISK AREAS

Mr. COUGHLIN. The justification also mentions a new program to assess and modify buildings in earthquake risk areas. What are your specific plans in this regard, and what is the associated funding in fiscal year 1991 and beyond?

Mr. AQUILANO. Preliminary designs have been completed for the two highest-risk facilities, Los Angeles and Oakland Air Route Traffic Control Centers. Assessment of the next priority facilities will continue. Our assessment will also include new information regarding survivability of our facilities exposed to the San Francisco earthquake in 1989. Future funding for the reduction of seismic hazards will be dependent upon the results of the assessment.

We are presently spending about $2 to $2.5 million per year as the level of effort for studies in A and E design work.

BUILDING/EQUIPMENT FUNDING PROFILE

Mr. COUGHLIN. Also for the record, please provide the amount of funding provided for this project for each of the fiscal years 1982 through the 1991 request, and a column showing the percentage increase/decrease over the prior year.

[The information follows:]

	Amount (millions)	Percent
Fiacal year:		
1982	0	0
1983	$7.2	+720
1984	4.2	−42
1985	0	....
1986	3.0	+300
1987	.8	−73
1988	5.9	+738
1989	11.7	+198
1990	18.0	+154
1991	24.4	+136

FUEL STORAGE TANK PROGRAM

Mr. COUGHLIN. Last year, you requested $10.75 million for this project. The fiscal year 1990 column of the 1991 budget shows only $5.9 million. Why is there such a difference, and where does this project fit into FAA's overall F&E priorities?

[The information follows:]

The fiscal year 1990 column of the 1991 budget shows the appropriated amount not the FAA requested amount to Congress. The reasons for the reductions were stated in House Report 101-183, page 59. The $5 million deleted is comprised of $3 million that was to be reserved for unforeseen contingencies and $2 million to replace tanks at locations where no problems have been identified. The Committee felt that the FAA should await the results of its own analysis of the power program to determine where engine generators can be replaced by new battery technology, before requesting funds for replacement programs and contingency accounts involving sites where no environmental problems have been identified. The Senate Report 101-121 (page 50) agreed with the House's reduction of funding for the reasons delineated in the House report. The FAA's analysis is expected to be completed by September 1990.

The FAA is required to be in compliance with State and Federal regulations governing storage of fuel in underground storage tanks.

NUMBER OF TANKS REMOVED AND/OR REPLACED—1988 THRU 1991

Mr. COUGHLIN. For the record, please update the tank location data shown on page 854 of last year's hearing record by adding a column for 1991.

[The information follows:]

NUMBER OF TANKS REMOVED AND/OR REPLACED USING FY 1988, 1989, 1990 AND 1991 FUNDS

Location	Accomplished in fiscal year 1988	Accomplished in fiscal year 1989	Planned in fiscal year 1990	Planned in 1991
1. Alaskan region	0	5	10	117
2. Eastern region	0	115	235	0
3. Central region	4	112	74	3
4. Great Lakes region	4	53	106	238
5. New England region	0	3	12	2
6. Northwest Mountain region	35	35	28	196
7. Southern region	15	70	70	512
8. Southwest region	88	239	173	33
9. Western Pacific region	10	140	133	56

CORN PROJECT COSTS

Mr. COUGHLIN. Back to CORN. On page 102, you are requesting $25 million for the CORN project. As you know, the GAO is recommending that the CORN procurement be terminated due to inadequate definition of requirements. We discussed this briefly yesterday with Administrator Busey. What is your overall assessment of the GAO's findings?

Mr. GOLDMAN. As was apparent in the session, the FAA's technical staff and GAO do disagree with their assessment. Since we first began meeting with GAO, their concern seems to have shifted to a response time problem. We believe that one situation drives the other. But because of the significant differences between the FAA and GAO, the Administrator has decided to get a third party to come in and give an independent assessment.

We hope to have that completed before the markup and will be providing a report to the Congress.

Mr. COUGHLIN. Please expand on your answer with details for the record.

[The information follows:]

The FAA technical staff and GAO do disagree in their assessments of the justification for the project, in the conversion cost issues, and in the use of operational capability demonstrations (OCD). Because of these strong differences, we are bringing in an independent expert to assess the situation, to look at the whole picture, and to confirm or refute whether we are headed in the correct direction. In this approach, we also hope to resolve any differences we have with GAO in regard to application of appropriate standards or measurement techniques.

CURRENT COMPUTER SYSTEM USAGE

Mr. **Coughlin**. Specifically, the GAO says that you do not routinely collect and analyze information describing how heavily your current computer systems are used. Do you collect such data from your 12 general purpose computer facilities, and if so, please describe that process.

Mr. **Goldman**. The first indication to us is as a user complains about their response time. Each of our 12 facilities have Data General computers. One center has the IBM-3084. The IBM system is bigger and can give us more on-line information on the capacities and response situation. The Data General minicomputers, being smaller, do not provide us with direct information unless there is a problem; then we can put tools on there to check those problems.

ADP GROWTH

Mr. **Coughlin**. You are projecting a 30-percent annual growth in ADP needs over the next decade. Do you currently record and track the growth in the use of those 12 facilities? If so, please describe that process.

[The information follows:]

Yes. We routinely track use of existing systems and produce monthly reports of utilization for each facility. Since we finished our studies in 1987, the growth occurring on the IBM has been within one percentage point of our 30 percent growth projection. Over the past 10 years, the record shows a workload growth of 1200 percent on the IBM facility.

Mr. **Coughlin**. Please expand on your answer for the record, and provide data on historic ADP growth within the FAA and a discussion of why you believe your ADP needs will grow at a 30 percent annual rate.

[The information follows:]

Data was measured from 1985 and 1987 on the Data General Systems. This data showed a 31.0 percent compounded annual growth rate. Data collected at various points in time from 1980 through 1989 on the IBM systems showed a 30.8 percent compounded annual growth rate. The growth rate predictions incorporated the current workload, the growth factor for the current workload, estimates for new systems under development, and latent or back-up demand.

During the past year, the IBM system experienced a 43.1 percent growth rate during the prime hours when FAA personnel require direct mission support. The 1989 growth rate includes the satisfaction of latent demand that backed-up prior to the increase in processing power which was expanded from 15.5 MIPS to 27 MIPS in December 1988. The poor system response is currently limiting growth and is again building latent demand.

The FAA believes that its ADP workload will continue to grow in the 1990s at the rates experienced during the last decade. This coincides with projected growth trends in the airline industry. The CORN approach provides for ADP services to be provided in increments as it is needed: hardware will not be bought or paid for per se under the contract. The government is not at risk if the actual and the estimated growth differ significantly.

Mr. **Coughlin**. Can you name any other Federal agencies which have experienced sustained annual growth rates of 30 percent in their general purpose ADP needs?

Mr. **Goldman**. The U.S. Army has indicated a growth rate in excess of 30 percent in their ADP systems, covered by their VIABLE facilities. Also, we checked with an industrial group, and they advised that the industry in 1989 was growing at about a rate of 24 percent in their systems.

VALIDATION OF CORN DESIGN

Mr. COUGHLIN. The current system is made up of over 270 application programs with nearly 15 million lines of computer instructions, source lines of code. Why has FAA chosen to use only two small computer programs made up of 12,000 lines of instructions to determine how accurately the vendors have developed their proposed CORN system? How can this small sample be adequate to validate the system design?

Mr. GOLDMAN. We must keep in mind that the FAA is buying a service, not equipment. The contractor is required to meet specific service levels. The thrust of the OCD is to show that the contractor can do what he says he can do in conversion and in operation. It validates, for example, that the conversion process results in a system having the same outputs with the same inputs as the existing system.

Also, the offeror is required to use modeling to show that the size of the proposed configuration has changed over time and it is adequate to meet the service levels of FAA's expanded loading. The OCD is used to show that the same modeling technique, when applied to the sample, correlates with the results of the actual operations.

CORN CONVERSION COSTS

Mr. COUGHLIN. According to the GAO, your cost estimate to convert existing software to CORN is way too low. As you stated last year (p. 858), your estimate to convert 14 million lines of code is $74.5 million. That results in an average cost of about $5 per line. The GAO has data showing that the industry average for that type of work is approximately $15 to $20 per line. That would represent a total cost of approximately $280 million, not the $74.5 million you have budgeted. How do you respond to this concern?

Mr. GOLDMAN. The standard government method is published by GSA. The GSA cost model was used by the FAA to do its CORN conversion cost estimates.

Mr. COUGHLIN. Why are we so far off here?

Mr. GOLDMAN. The only thing we can surmise is that there is a disagreement in the procedures that GSA has prescribed and what GAO feels should be done. So that is something that I think GSA and GAO need to look at.

Mr. COUGHLIN. As well as you.

Mr. GOLDMAN. As well as us once they have determined what is the proper approach.

Mr. COUGHLIN. Are the contract bids you have received for software conversion in the ballpark of your budget estimate?

Mr. GOLDMAN. If the actual costs are determined to be greater when we finish that process, we will come back.

Mr. COUGHLIN. Have you received a cost estimate from GSA's Federal Systems Integration and Management Center (FEDSIM) for software conversion? If so, what was their estimate?

Mr. GOLDMAN. No. FAA had the conversion study completed using the GSA standard conversion model. FEDSIM was consulted and agreed in the approach the FAA was using.

Mr. COUGHLIN. FAA estimates that it will need 85 manyears of support for the conversion. What types of activities would be performed by these staff?

Mr. GOLDMAN. The following type of activities will be performed: transition planning for the government staff, system validation, program data preparation, unit testing, system testing of the deliverables and system documentation. Certification and acceptance testing review is involved along with training planning, training coordination and administration and post-transition cleanup.

Mr. COUGHLIN. FAA is proposing that the conversion work be accomplished on a fixed price basis. However, your large number of support staff implies a "hands on" approach not normally associated with low risk, fixed price contract efforts. Why do you need so many staff when you are expecting the contractor to deliver a product on a fixed price, and when government regulations only allow the use of fixed price contracts in cases of low program risk?

Mr. GOLDMAN. We believe the support staff requirements in CORN are the minimal government involvement applicable regardless of the method of pricing. We need that to ensure that the government gets a satisfactory conversion. Considering that we have 12 sites with several different types of equipment involved, we don't think this is a large number, given those sites are dispersed throughout the country.

Mr. COUGHLIN. Why won't a fixed price assure that?

Mr. GOLDMAN. Fixed price will give us part of that assurance, but we have to believe that we, because of the numbers of people and systems we have involved, need to go through it.

Mr. COUGHLIN. Is it true that one or more firms did not bid on the CORN procurement partially based on concerns that the conversion effort entailed too much risk to be done on a fixed price basis?

Mr. GOLDMAN. One firm indicated concern when the draft RFP was issued to the industry for comment. However, we are not privy to the rationale used for not bidding. The agency made many changes to the solicitation to remove the risks that were indicated by industry and that we felt were excessive.

CORN CONVERSION-IN-HOUSE VS. CONTRACT

Mr. COUGHLIN. Have you determined whether the program offices have adequate staff to support the conversion while carrying out their regular duties, or will they need to contract out for assistance?

[The information follows:]

Program offices were alerted to estimated staffing support requirements for application system conversion via Action Notice A 1370.15, dated March 16, 1989. The formula provided indicates that an estimated 85 work-years are required agencywide for this support.

Until the contract is awarded, the conversion approach known, and the host resource configuration determined, the CORN project manager cannot fully develop agency staffing needs for converting application systems. Planning and scheduling conversions will then be conducted in coordination with office of primary responsibility (OPR) managers and supporting information system (IS) managers. These two organizations are most directly involved in these activities. Within the budgetary process over several fiscal years, there will be sufficient flexibility in the overall conversion schedule to permit region-by-region adjustments that recognize shortfalls in staffing. If needed, contractual assistance will be provided to OPR and/or IS managers.

CORN CONVERSION SCHEDULE

Mr. COUGHLIN. Have you completed a schedule for the conversion that indicates FAA staffing needs and availability, and have all FAA offices agreed to those needs and schedule?

[The information follows:]

FAA has prepared an "ideal" conversion schedule with the related staffing needs subject to the contract dependent unknowns, the vendor's proposed configuration, and the vendor's proposed use of the FAA staff assistance. This is now being coordinated with the FAA's principals; preliminarily, there is agreement/consensus.

INSPECTOR GENERAL REPORT ON CORN

Mr. COUGHLIN. On November 22, 1989 the DOT Inspector General issued a draft report on the CORN project. What were their preliminary findings and recommendations, and what were your responses to each?

[The information follows:]

OIG's draft report was based on an anonymous source that alleged that FAA provided insufficient time and information for vendors to submit a fixed price bid on the conversion. The anonymous source also alleged that FAA's use of a fixed price contract for the conversion is inappropriate. OIG's position is that these allegations are unsubtantiated.

OIG states that the functional requirements documentation should also be completed. FAA has concurred in principle, but believes that the said requirement is not within the scope of CORN. FAA has agreed to separately review and address this later.

OIG states that the cost estimates for conversion need to be updated. FAA has concurred and is updating them now. Similarly, OIG has indicated that revised budget estimates may be required. FAA has concurred and, if deemed necessary, will do so prior to the markup of the FY 1991 budget.

CONVERSION OF REGIONAL DATABASES

Mr. COUGHLIN. The FAA regions operated numerous databases which contain information of a regional nature, and some of these larger databases such as SAM and ASAS contain hundreds of millions of bytes of data. What is the purpose in centralizing regional databases which have region-specific information?

[The information follows:]

FAA agrees that strictly local databases should be maintained locally, preferably on LAN and PC based systems per the FAA's agencywide OATS contract. However, the databases to be "centralized," such as those cited, have both local and national users. In this context, each set of users all too often maintain their respective versions of these databases. This leads to redundant efforts, costs, and data. Put in another perspective, what appears to be separate and discrete are in fact related and the local version is often derived from the national version. Hence, they cannot be treated as being independent. All things considered, emphasis will be given to converting those database applications involving common data and shared usage.

Mr. COUGHLIN. Let's take a hypothetical example. What would be the communications costs for users in Anchorage to access Alaska-specific personnel or property information which is stored in a central site such as Oklahoma City? Why incur such costs in the first place?

[The information follows:]

The illustration given is realistic, but the description fails to mention that though the data is Alaska specific, it is used both locally and nationally. Further, charges for the telecommunications network are not currently split out by location or usage. Per FAA's dispersed facilities, there will almost always be local and remote usage and both must access the same data. Therefore, telecommunications of some sort are required with or without CORN. As an example, the cited personnel data is currently collected (via telecommunications), processed and stored centrally, to meet national needs. Alaska specific data is sent back to the region monthly for local processing such as for trend analysis or reports unique to the region. OATS micro workstations are expected to be used in the future to do this local processing. Consequently, CORN's centralization does not necessarily result in additional telecommunications costs.

CORN PROJECTED ANNUAL COST SAVINGS

Mr. COUGHLIN. What are the current telecommunications annual costs associated with the Common System and how much will CORN save those costs in the future?

[The information follows:]

The telecommunications network serving the common system costs on the average $4.0 million annually, however, this figure includes intermingling of costs for other functions such as electronic mail services and national airspace system (NAS) data collection. The costs of just the common systems usage are not tracked separately and thus, are unavailable. However, we estimate that 90 percent of these costs are attributable to common system support and these costs are not expected to change significantly with CORN. CORN assumes telecommunications availability is a given and requires the successful vendor to connect to the agency's network whether it is ADTN or FTS-2000.

Mr. COUGHLIN. Is it not true that the industry trend is to distribute as much processing capacity as possible to the user, and isn't the CORN concept in direct conflict with those trends?

Mr. GOLDMAN. The OATS procurement, which is separate from CORN, does provide the tools and the information to the user at their desk. They will access data provided from the CORN system.

Mr. COUGHLIN. If we don't get CORN we get OATS?

Mr. GOLDMAN. We get both.

AERONAUTICAL CENTER COMPUTER UPGRADE

Mr. COUGHLIN. The IBM 3084 mainframe system at the Aeronautical Center in Oklahoma City is scheduled to be upgraded to a 3090 model in order to handle increased computing and communications demands. What would be the costs to upgrade the Data General systems at the FAA regional sites to handle anticipated demands for computing resources for the near future, and forego the currently estimated $1.5 billion expenditure for CORN?

[The information follows:]

There is only a contingency plan to upgrade the IBM 3084 to meet immediate needs should CORN be further delayed. The current system has exceeded the manufacturers upgrade guidelines for interactive systems and is considered fully saturated. As additional workload is added, response times will become more erratic and extended (i.e., 8 seconds to several minutes). An upgrade to an IBM 3090 will provide approximately one year of relief before the situation deteriorates again. Given the protracted procurement lead time, this year may pass before the relief arrives.

There is no contract vehicle in place to upgrade the DG systems. A competitive procurement action that would need to be started and delivery of hardware could take 2 years. No immediate benefits can be realized to alleviate current problems. In comparing the alternative of continuing past upgrade practices to CORN, the full upgrade and operational costs for the 10-year period must be considered. These continuing-business-as-usual costs are estimated at $2.2 billion for FAA alone. In contrast, the CORN contract for FAA is estimated at $875 million. The $1.5 billion figure represents FAA plus all DOT options. The options are to be exercised after a cost benefits analysis and all regulatory requirements are satisfied.

CONTINGENCY PLAN REGARDING CORN

Mr. COUGHLIN. What is the FAA's contingency plan should CORN not be approved or funded?

Mr. GOLDMAN. Upgrade the IBM 3084 to meet immediate needs at the center should CORN be delayed. Because there is no natural growth path for the Data General in our regions, they will soon have to be replaced in entirety through a competitive procurement. As indicated yesterday, the estimated costs should we have to go that way over 10 years will exceed $2.2 billion, and I will provide for the record more detail.

[The information follows:]

FAA has a contingency plan to upgrade the IBM 3084 to meet immediate needs should CORN be delayed. Because there is no natural growth path for existing computer systems, including DG, they will have to be replaced in entirety through competitive procurement(s).

CORN CONVERSION APPROACH

Mr. COUGHLIN. Why did the FAA not make changes to the CORN specification with regard to the conversion approach and allowance of multiple architecture technical solutions, as requested by potential bidders?

[The information follows:]

Changes were made to the conversion approach to alleviate risks pointed out by potential bidders. FAA extended the timeframe for completing the conversions based upon bidder suggestions and on the impact on the FAA staffs in both supporting the current production systems and supporting a conversion effort.

One vendor aggressively lobbied for a cost plus conversion effort whereby all risk was assumed by the government. Also the vendor wanted to redesign the software during the conversion process which would significantly increase the conversion timeframe and costs (200-500 percent). This is contrary to the GSA Federal Software Management Support Center recommendations. Responses from experienced commercial software conversion firms supported the fixed price conversion approach.

Multiple architectures will not meet FAA requirements and they consume critical staff resources. Multiple architectures increase the complexity of the operation, program support and integration of FAA's application systems. Systems which are fragmented across multiple architecture are far more complex in that they support multiple environments with differing operating systems, control languages, communications protocols, file structures, language variations, and data base architectures.This fragmentation will also result in additional processing overhead, increased training requirements, and a requirement for additional technical staff.

A single architecture allows for economy of scale and provides an environment conducive to the full integration of FAA aviation safety, regulatory and administrative systems. A single architecture, hardware and software, provides the platform required for the successful integration of FAA systems over the next decade.

CONTACT WITH ARMY ASIMS (VIABLE) PROGRAM

Mr. COUGHLIN. What, if any, contact has the FAA had with the Army ASIMS (formerly VIABLE) program officers to discuss the CORN approach?

Mr. GOLDMAN. A great amount of contact was made with the Army ASIMS program officials, early in the development of CORN in particular, to ensure that FAA bypassed the pitfalls that Army may have found. Some of those pitfalls were purchases of hardware and software, inadequate growth projections, 10 percent versus 33 percent, actually occurring.

Mr. COUGHLIN. Why did you single out the Army to contact?

Mr. GOLDMAN. Because their system several years ago, what they called the VIABLE system, was the start of this type of approach.

ACRONYMS

Mr. COUGHLIN. Do you have a dictionary of acronyms?

Mr. STOER. Yes, sir. Our budget includes an appendix that has a large number of acronyms in it.

Mr. COUGHLIN. Do you have a copy of that?

Mr. STOER. Yes.

[The information follows:]

GLOSSARY OF ABBREVIATIONS APPEARING IN FAA JUSTIFICATION

AAS	Advanced Automation System
AAS	Automated Airport Service
ACARS	Air Carrier Address and Reporting System
ACCC	Area Control Computer Complex
ACD	Automatic Call Distributor
ACF	Area Control Facility
ACT	Federal Aviation Administration Technical Center
ADAP	Airport Development Aid Program
ADAS	AWOS Data Acquisition System
ADCN	Agencywide Administrative Data Communications Network
ADDM	Automated Documentation Development and Maintenance
ADI	Attitude Direction Indicator
ADP	Automated Data Processing
ADS	Automatic Dependent Surveillance
ADTN	Administrative Data Telecommunications Network
AERA	Automated En Route Air Traffic Control
AF	Airway Facilities
AFIS	Automated Flight Inspections System
AFSS	Automated Flight Service Station
AIMP	Aeronautical Information Management Program
AIP	Airport Improvement Program
ALS	Approach Light System
ALSIM	Airport Landside Simulation Model
ALSIP	Approach Lighting System Improvement Program
AMMP	Agency Management Modernization Plan
AMS	Aeronautical Mobil Service
ARF	Aviation Route Forecast
ARINC	Aeronautical Radio, Incorporated
ARRAS	Aircraft Registration Records Administration System
ARSR	Air Route Surveillance Radar
ARTCC	Air Route Traffic Control Center
ARTS	Automatic Radar Terminal System
ASAS	Aviation Safety Analysis System
ASDE	Airport Surface Detection Equipment
ASDO	Aviation Standards District Office
ASOS	Automated Surface Observing System
ASTA	Airport Surface Traffic Automation
ASR	Airport Surveillance Radar
ASRP	Aviation Safety Reporting Program
ATAS	Automated Traffic Advisory Service
ATC	Air Traffic Control
ATCAC	Air Traffic Control Advisory Committee
ATCCC	Air Traffic Control Command Center
ATCRBS	Air Traffic Control Radar Beacon System
ATCT	Airport Traffic Control Tower
ATIS	Automated Terminal Information System
ATMS	Advanced Traffic Management System
AT&T	American Telephone and Telegraph
AUTODIN	Automatic Digital Network
AVS	Office of Aviation Standards

AWIPS	Advanced Weather Information Processing Systems
AWIS	Airport Weather Information System
AWOS	Automated Weather Observing System
BANS	Bright Radar Indicator Tower Equipment (BRITE) Alpha-Numeric Subsystem
BIS	Budget Information System
BPS	Bits Per Second
BRITE	Bright Radar Indicator Tower Equipment
BUEC	Backup Emergency Communications
CAAA	Clean Air Act Amendment
CADM	Computer-Aided Decisionmaking
CAIS	Comprehensive Airmen Information System
CAMI	Civil Aeromedical Institute
CARF	Central Altitude Reservation Function
CAT	Category
CBR	Commercially Based Rent
CBI	Computer Based Instruction
CCD	Configuration Control Decision
CCMS	Central Control Monitoring System
CCS	Controller Chart Supplement
CD	Common Digitizer
CDR	Critical Design Review
CDTI	Cockpit Display of Traffic Information
CERAP	Combined Center Radar Approach Control
CERAP	Consolite San Juan Facilities Center Radar Approach
CFCF	Central Flow Control Function
CFR	Crash-Fire Rescue
CONUS	Continental, Contiguous, or Conterminous United States
COS	Change of Station
COTS	Commercial off-the-shelf
CPG	Central Programming Group
CPMIS	Consolidated Personnel Management Information System
CT	Centralized Training
CUP	Central Utilities Plant
CWF	Controller Work Force
CWP	Central Weather Processor
CWSU	Central Weather Service Unit
DAR	Designated Airworthiness Representative
DARC	Direct Access Radar Channel
DASD	Digital Access Storage Devices
DASI	Digital Altimeter Setting Devices
DBRITE	Digital Bright Radar Indicator Tower EQuipment
DECCO	Defense Commercial Communications Office
DEMARCS	Demarcation
DF	Direction Finder
DLP	Data Link Processor
DME	Distance Measuring Equipment
DMN	Data Multiplexing Network
DMSA	Designated Major Systems Acquisition
DOD	Department of Defense
DOL	Department of Labor

DOS	Department of State
DOT	Department of Transportation
DOTS	Dynamic Ocean Track System
DUAT	Direct User Access Terminal
DVOR	Doppler Very High Frequency Omnidirectional Range
EAP	Employee Assistance Program
EARTS	En Route Automated Radar Tracking System
ECT	Evaluation, Currency and Transportation
EFAS	En Route Flight Advisory Service
EFIS	Electronic Flight Instrumentation Systems
EFR	Electronic Flight Rules
EIP	Employee Involvement Program
EIS	Enforcement Information System
EOQ	Economic Order Quantity
EPA	Environmental Protection Agency
E&R	Exchange and Repair
FAA	Federal Aviation Administration
FAAP	Federal Aid Airport Program
FAATC	Federal Aviation Administration Technical Center
FAM	Federal Air Marshall
FAR	Federal Air Regulation
F&E	Facilities and Equipment
FCC	Federal Communications Commission
FDD	Flight Data Displav
FDIO	Flight Data Input/Output
FDS	Flight Director Systems
FEDSTRIP	Federal Standards Requisition and Issue Procedures
FERS	Federal Employees' Retirement System
FIFO	Flight Inspection Field Office
FL	Flight Level
FMS	Flight Management System
FOIA	Freedom of Information Act
FPL	Full Performance Level
FPS	Military Primary Radar
FRP	Federal Radio Navigation Plan
FSAS	Flight Service Automation System
FSDPS	Flight Service Data Processing System
FSS	Flight Service Station
FSTN	Federal Secure Telephone Network
FTE	Flight Technical Error
FTE	Full-Time Equivalent
FTP	Full-Time Permanent
FTS	Federal Telecommunication System
G/A	General Aviation
GNAS	General National Airspace System
GPS	Global Positioning System
GREAT	Graduate-Level Research and Education in Aviation Technology
GSA	General Services Administration
HAT	Height Above Touchdown

HCVR	High Capacity Voice Recorders
HEMP	High Altitude Electromagnetic Pulse
HF	High Frequency
HI-EFAS	Hi Fi Altitude En Route Flight Advisory Service -
HR	Human Relations
HRM	Human Resources Management
HUD	Head-Up Display
IAPA	Instrument Approach Procedures Automation
ICAO	International Civil Aviation Organization
ICSS	Integrated Communications Switching System
IFDT	Interfacility Data Transfer
IFM	Integrated Flow Management
IFR	Instrument Flight Rules
IFSS	International Flight Service Station
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
INS	Inertial Navigation Systems
IOT&E	Independent Operational Test and Evaluation
IR&D	Independent Research and Development
IRMP	Information Resources Management Plan
ISP	Interim Support Plan
ISU	Inertial Sensor Unit
ISSS	Initial Sector Suite Subsystem
ITU	International Telecommunication Union
IVRS	Interim Voice Response System
JAWS	Joint Airport Weather Studies
JSS	Joint Surveillance System
LCN	Local Communications Network
LIP	Limited Installation Program
LORAN C	Long Range Navigation System - [Pulsed, Hyperbolic) Operating in 90 - 110 kHz (kilohertz) Frequency Band]
LIS	Logistics and Inventory System
L,P&HR	Labor, Personnel and Human Relations
LLWAS	Low Level Wind Shear Alert System
LOFF	LORANC Flight Following
LRR	Long Range Radar
MAFIS	Multiple En Route Automatic Flight Inspection System
MALS	Medium-Intensity Approach Lighting System
MALSR	Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights
MAPO	Maintenance Automation Program Office
MAR	Minimally Attended Radar
MAX-E	Modular X-ray System
MCC	Maintenance Control Center
MCI	Mode C Intruder
MDA	Minimum Descent Altitude
MILSTRIP	Military Standard Requisition and Issue Procedures
MLS	Microwave Landing System
MMS	Maintenance Management System
MNPS	Minimum Navigation Performance System

MODE S	Discrete Addressable Secondary Radar System with Data Link
MODE-S	Mode Select Air Traffic Control Radar Beacon System
MOPS	Minimum Operational Performance Standard
MPS	Maintenance Processor Subsystem
MSL	Mean Sea Level
MTD	Moving Target Detection
MWP	Meteorological Weather Processor
NAD	North American Datum
NADIN	National Airspace Data Interchange Network
NARE	National Airspace Review Enhancement
NARACS	National Radio Communications System
NAS	National Airspace System
NASA	National Aeronautics and Space Administration
NASP	National Airspace System Plan
NASPAC	National Airspace System Performance Analysis Capability
NATCOM	National Communications Center, Kansas City, Missouri
NAVAID	Navigational Aid
NAVSTAR	Navigation System Using Timing and Ranging
NBS	National Bureau of Standards
NCU	Navigational Computer Unit
NDB	Non Directional Beacon
NEPA	National Environmental Policy Act
NEXRAD	Next Generation Weather Radar
NFDC	National Flight Data Center
NFIC	National Facilities Information Systems
NGS	National Geodetic Survey
NIH	National Institutes of Health
NMR	Nuclear Magnetic Resonance
NOS	National Ocean Service
NOTAM	Notice to Airmen
NPIAS	National Plan of Integrated Airport System
NPRM	Notice of Proposed Ruling
NSDD	National Security Decision Directives
NSEP	National Security Emergency Preparedness
NSSF	National Airspace System Simulation Support Facility
NTSB	National Transportation Safety Board
NWS	National Weather Service
OCAT	Oklahoma City Airport Trust
OCR	Optical Character Reader
ODAPS	Oceanic Display and Planning System
OFDPS	Offshore Flight Data Processing Systems
OMB	Office of Management and Budget
OSHA	Occupational Safety and Health Administration
OMEGA	Very Low Frequency, Continuous Wave Radio Navigation System Operating in 10 -14 KHZ Frequency Range
OPM	Office of Personnel Management
OWCP	Office of Workers' Compensation Program
PAPI	Precision Approach Path Indicator
PCB	Polychlorinated Biphenyl
PCB	Printed Circuit Board

PC&B	Personnel Compensation and Benefits
PCRM	Parallel and Converging Runway Monitors
PCS	Permanent Change-of-Station
PCS	Power Conditioning System
PDME	Precision Distance Measuring Equipment
PL	Public Law
PMIS	Personnel Management Information System
PMS	Performance Management System
PPI	Plan Position Indicators
PRMS	Performance Management and Recognition System
R&D	Research and Development
RAIL	Runway Alignment Indicator Lights
RAPCON	Radar Approach Control
RASS	Radar Analysis Software System
RBDE	Broadband Radar Remoting and Display Equipment
RCAG	Remote Center Air/Ground Communications Facility
RCE	Radio Control Equipment
RCF	Remote Communications Facility
RCL	Radio Communications Link
RCMS	Runway Configuration Management System
RCO	Remote Communications Outlet
R&D	Research and Development
REAP	Records Examination Assistance Program
R,E&D	Research, Engineering and Development
REIL	Runway End Identification Lights
RFI	Radio Frequency Interference
RFP	Request for Proposal
RML	Radar Microwave Link
RMLR	Radar Microwave Link Repeater
RMLT	Radar Microwave Link Terminal
RMM	Remote Maintenance Monitoring
RMMS	Remote Maintenance Monitoring System
RMS	Remote Monitoring Subsystem
RNAV	Area Navigation
RSPA	Research and Special Programs Administration
RTCA	Radio Technical Communication for Aeronautics
RTF	Radar Training Facility
RTR	Remote Transmitter/Receiver
RVR	Runway Visual Range
RVV	Runway Visibility Value
SAFE	Safety Activity Functional Evaluation
SARPS	Standards and Recommended Practices
SBIR	Small Business Innovative Research
SCFM	Standard Cubic Feet Per Minute
SEI	System Engineering and Integration
SFO	Single Frequency Outlet
SIAP	Standard Instrument Approach Procedure
SIDP	Supervisory Identification and Development Program
SMP	Special Maintenance Project
SPCC	Spill Prevention Counter Measure and Control
SRAP	Senor Receiver and Processor

SSB	Single Side Band
SSR	Secondary Surveillance Radar
SSR	Solid-State Radiation
STAR	Southern California Terminal Airspace Realignemt
SUA	Special Use Aircraft
TAA	Terminal Advanced Automation
TAC	Technical Activities Committees
TACAN	Tactical Air Navigation
TATCA	Terminal Air Traffic Control Automation
TCA	Terminal Control Areas
TCAS	Traffic Alert and Collision Avoidance System
TCCC	Tower Control Computer Complex
TDWR	Terminal Doppler Weather Radar
TELCO	Telephone Company
TELPAK	Telephone Package
TERPS	Terminal Instrument Procedures
TM&O	Telecommunications, Management and Operations
TMS	Traffic Management System
TMU	Traffic Management Unit
TRACAB	Terminal Radar Approach Control in the Tower Cab
TRACON	Terminal Radar Approach Control
TRB	Transportation Research Board
TSC	DOT Transportation System Center
TSSC	Technical Support Services Contract
TVOR	Terminal Very High Frequency Omni- Directional Radio Range
TXP	Military Designation for a Radar Beacon Processing System
UAS	Uniform Accounting System
UHF	Ultra High Frequency
UPS	Uniform Payroll System
USAF	United States Air Force
USCG	United States Coast Guard
VASI	Visual Approach Slope Indicator
VDP	Visual Descent Point
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOLMET	Meteorological Information for Aircraft in Flight
VOR	Very High Frequency Omnidirectional Radio Range
VORTAC	VOR Co-located and TRACON
VOT	VHF Omnidirectional Range Test
VRS	Voice Response System
VSCS	Voice Switching and Control System
WCP	Weather Communications Processor
WIGS	Within - Grade Salary Increases
WMSC	Weather Message Switching Center
WPMS	Work Program Management system
WX	Weather

ARMY ASIMS MEETING ON CORN

Mr. COUGHLIN. For the record, provide dates and details of those meetings or other contacts.

[The information follows:]

The CORN project staff had preliminary meetings with the Army ASIMS staff in October 1986. In December 1986, the CORN staff met with the ASIMS contracting staff at their site. Copies of the ASIMS RFP were provided to the FAA and on December 16, 1986 the Army ASIMS project staff conducted a formal briefing for the CORN project staff. A tour of the ASIMS facility in Springfield, VA occurred in February 1987 and was followed by a meeting conducted at Ft. Belvoir on the lessons learned from the ASIMS experience.

FAA regional ADP managers from the Southwest and Southern regions visited the ASIMS installations in Ft. Worth and Atlanta, respectively, and provided an independent assessment of the ASIMS approach.

One of the advisors to the CORN program has been a staff officer on the ASIMS project. FAA acquired copies of the ASIMS Lessons Learned documents from the Army prior to the development of the CORN RFP and has benefited from the Army's experience with ASIMS.

Mr. COUGHLIN. Isn't it true that the Army's VIABLE system now has to be replaced due to a flawed system architecture, and that the House Appropriations Defense Subcommittee has been very critical of that architecture?

Mr. GOLDMAN. I am not in a position to go into a lot of detail on this. I understand that they are having problems in upgrading their equipment.

Mr. COUGHLIN. To what extent would you say that CORN is based upon or modelled after the Army's VIABLE system?

Mr. GOLDMAN. CORN is an ADP service level, base level replacement. It is not just equipment as was the Army system.

CORN PROJECT COSTS

Mr. COUGHLIN. The CORN project costs have risen from $148 million to $1.5 billion. Is the $1.5 billion a firm number, or will it go higher?

Mr. GOLDMAN. The $1.5 billion has been firm since 1987. We have not changed that upper limit since that time. The changes to the potential CORN costs are principally related to when we began in 1986. We started just thinking about modifying our administrative systems and the equipment that is tied to those systems and just the operational software that operates the computer.

We expanded that to include other systems in just administration. We converted the application systems and then added the DOT requirements on top of that.

Mr. COUGHLIN. For the record, please provide a breakdown by fiscal year of the $1.5 billion in estimated CORN costs, and state the account in which those funds would be requested (F&E, operations).

[The information follows:]

The $1.5 billion is extracted from the Agency Procurement Request for GSA Delegation of Procurement Authority. It represents the total cost estimate, exercising all options, for FAA and other elements of DOT. FAA's portion of the total CORN program is $875 million which is broken down below. There is no similar breakdown of the $625 million for other elements of DOT.

Fiscal year	F&E	Operations	Total
1989	15.0		
1990	8.9		
1991	25.0		
1992	50.0		
1993	49.1		
1994		59.0	
1995		89.2	
1996		108.0	
1997		130.0	
1998		149.2	
1999		192.2	
Total	148.0	727.6	875.6

CORN PROGRAM COSTS BY CATEGORY

Mr. COUGHLIN. Also for the record, please break down the total program cost by development/design, production, operations, engineering support, program support, and other.

[The information follows:]

CORN is merely the provider of large scale processing services just as a utility company is the provider of electrical service. In providing this service, the contractor is required to use off-the-shelf hardware and software and configure them in a way to meet the service needs. Thus, all costs are for production and there are no design, development, engineering support, program support, and associated costs as there would be for a research and development effort.

CORN PROJECT COSTS FOR FY 1991

Mr. COUGHLIN. Please also break down the fiscal year 1991 request of $25 million by the work to be performed.

[The information follows:]

The $25 million will be expended as follows: $11.1 million for conversion and $13.9 million for processing of converted systems.

CORN CONTRACT AWARD

Mr. COUGHLIN. Is it your view that the CORN contract can be awarded in the absence of prior congressional approval, based on resolution of the GAO's concerns? If so, how did you arrive at that conclusion?

Mr. GOLDMAN. We thought we could not proceed without the committee's concurrence.

TSARC REVIEW OF CORN

Mr. COUGHLIN. Does the CORN project currently fall under the review of the Transportation Systems Acquisition Review Council (TSARC)? If so, when was the date of their last review and what type of approval was granted?

[The information follows:]

Yes, CORN falls under review of the TSARC. On December 8, 1987, CORN was designated a Major System Acquisition with the requirement to submit quarterly written reports. On January 19, 1989, the CORN project received approval from the TSARC to proceed through Key Decision Point #4 to proceed to "Full Production" subject to availability of funds. Semi-annual status reviews are also conducted to provide oversight by OST and FAA management. The last such briefing was conducted on January 31, 1990.

Mr. COUGHLIN. For the record, please provide a copy of the decision memorandum of that meeting.

[The information follows:]

U.S. Department of Transportation

Office of the Secretary of Transportation

Memorandum

Subject: ACTION: Key Decision Point #4 Approval for the CORN Project Acquisition

Date: [illegible] 19 1989

From: The Deputy Secretary

Reply to Attn of:

To: T. Allan McArtor
Federal Aviation Administrator

I approve your request to proceed through Key Decision Point #4 (Full Production) for the Computer Resources Nucleus (CORN) acquisition project subject to the availability of funds. The approved funding level is $1.532 billion. The approval is subject to the following conditions:

- Development of a more detailed implementation plan and milestones to accomplish the various action items outlined in the Associate Administrator for Administration's memorandum of November 18, 1988 (attached). I would appreciate submission of this material within 30 days.
- Preparation of a briefing on the feasibility of including positive performance incentives and/or an award fee in the CORN contract. I have asked the Assistant Secretary for Administration to review the briefing material with you to see if additional incentives should be included in the contract. This review need not delay the release of the solicitation.
- The Transportation Systems Acquisition Review Council will review this project prior to the exercise of the option for the sixth year, or, as with other Major Systems Acquisitions, if there are significant program or budget changes.

The Assistant Secretary for Administration will provide further guidance on satisfying these conditions. Quarterly status reviews of the CORN project should continue.

Attachment

- # -

US Department
of Transportation
**Federal Aviation
Administration**

Memorandum

Subject ACTION: FAA Plans Regarding CORN
Procurement and Implementation

Date NOV 18 1988

From Associate Administrator for Administration

Reply to
Attn. of

To Assistant Secretary for Administration

Based on recent discussions with your staff, we have agreed to a number of important steps with respect to the CORN procurement and its future implementation. These steps, which are described in the attachment, address budget and funding, software conversion, and the implementation plan.

We agree that the effective execution of these planned actions is critical to the success of CORN, and, therefore, we request that they be considered as FAA commitments in your current review of our Key Decision Memorandum.

Brooks C. Goldman

Brooks C. Goldman

Attachment

Attachment

PLANNED ACTIONS ON THE CORN PROCUREMENT AND ITS IMPLEMENTATION

- Budget/Funding
  - -- FAA will budget centrally for this contract in FY 1990 and FY 1991 and will develop procedures by March 31, 1990, to ensure that, beginning with FY 1992, FAA and other potential Department of Transportation (DOT) users plan for and commit to funding levels adequate to support the minimum services.
  - -- FAA will close the current 12 host centers' data processing operations within 3 years (upon completion of the transition period), with any exceptions being permitted only upon Office of the Secretary approval of compelling justification.
- Software Conversion
  - -- FAA will (1) establish separate cutoff dates for changes to existing software for each system to be converted and (2) address these dates in its implementation issuance. The issuance will also address how software documentation will be maintained in an adequate condition for conversion.
  - -- Consistent with the current draft RFP, FAA will specify that translated Government software and data are Government property and that these are deliverable upon demand.
  - -- FAA will establish policies and procedures ensuring that, prior to initiating new applications development, a decision will be made by FAA heardquarters regarding the host selection based on cost/benefits analyses. Decision criteria will include the potential cost of locking CORN users into a particular vendor.
  - -- FAA will cite appropriate FIPS standards in the RFP and incorporate associated evaluation criteria to minimize conversion problems at the end of the CORN contract.
- Implementation Plan
  - -- FAA will establish an estimate of FAA/DOT staffing resources required and their availability for each system conversion prior to contract negotiations.
  - -- The FAA internal order and preliminary plan for implementation and the Human Resources Study will be completed prior to receipt of offers and provided to OST for review.
  - -- FAA's implementation plan will provide for strong central management of this contract, including the regular involvement of upper FAA management to resolve conflict and ensure sound overall direction.
  - -- FAA's implementation plan will present a management structure and staff resources adequate to manage this project centrally. This plan will include systematic upper management involvement.
  - -- The implementation plan will (1) address specific action dates, procedures, roles and responsibilities and (2) include guidance for other DOT users on funding, budgeting, staff resources, and chargeback methods.

Mr. COUGHLIN. Provide schedules and brief descriptions of future TSARC acquisition milestones and corresponding FAA program reviews conducted by the Executive Director for Acquisition.

[The information follows:]

There are no TSARC acquisition milestones after Key Decision Point #4 which was granted on January 19, 1989 to proceed to Full Production. The CORN project office continues to provide the required Major System Acquisition quarterly reports and semi-annual briefings.The last such briefing was conducted on January 31, 1990 to OST and FAA management including the Executivie Director for Acquisition and the Administrator, FAA.

CORN ALTERNATIVES

Mr. COUGHLIN. Last year, you provided some sketchy details of the costs of CORN alternatives. Please update each of those alternatives and provide details on how those estimates were derived and what supporting data was utilized to arrive at the assumptions made.

[The information follows:]

Updated total projected costs for the FAA are:

Option:	*Cost (billion)*
CORN approach	$1.16
Current approach	1.57
Upgraded approach	2.20

The "CORN approach" includes $719 million for CORN continuing operations cost, $156 million for conversion costs and processing converted systems, during transition, $282 million for parallel operations and personnel costs, and $5 million for CORN support.

The "current approach" cost is derived by simply continuing to increase expenditures in the future at the rate of 19.5 percent per year as found during the period 1985 through 1988. This approach funds the existing 12 government-owned facilities and includes a modest increase in capacity. The 19.5 percent rate includes economic adjustment for maintenance and operations costs, both of which are very people-dependent, and includes funding for annual capacity increases of about 15 percent. Under this approach, performance problems will persist and the benefits to FAA are limited.

The "upgraded approach", considered economically feasible, included the costs for associated operations, procurements, training, conversion as applicable, and support items as needed to fully meet the capacity needs of the agency. This alternative used government-owned facilities. Component costs, e.g., hardware, software, and operations, were derived from a survey of industry prices, existing FAA contract prices, and GSA contract prices. Major system upgrades, competitive procurement action occur approximately on a 2 year cycle over the 10 year life to ensure that capacity would be available to meet performance requirements until the next upgrade.

ADP PROCUREMENT PRACTICES

Mr. COUGHLIN. The Navy has recently been found guilty in the courts of having an "IBM bias" in its ADP procurement practices. What has FAA done in CORN to ensure that you are not subject to the same allegations?

Mr. GOLDMAN. FAA's requirements are strictly functional except where the interface to other FAA facilities is involved. We are buying services, not hardware, and have left it wide open as to what system the contractor will provide.

LAND OR EASEMENT PURCHASES

Mr. COUGHLIN. Please provide for the record a breakdown of your $3 million request for the purchase of land or easements in fiscal year 1991, similar to the information shown on pages 862 and 863 of last year's hearing record.

[The information follows:]

FISCAL YEAR 1991 PLANNED LAND ACQUISITIONS

CITY/STATE	FACILITY	NUMBER OF ACRES	COST PER ACRE	TOTAL COST
ALABAMA				
Birmingham	H/OM	0.6	$50,000	$30,000
ARKANSAS				
Little Rock	OM	0.2	$225,000	$45,000
Little Rock	RTR	1.5	$50,000	$75,000
Pine Bluff	VORTAC	75	$1,000	$75,000
ARIZONA				
Prescott	DF	3	$33,333	$100,000
CALIFORNIA				
Carlsbad	OM	0.3	$250,000	$75,000
San Luis Ob	VORTAC	40	$1,250	$50,000
FLORIDA				
Brooksville	RCAG	1.3	$15,000	$19,500
Crestview	RCAG	1.3	$15,000	$19,500
GEORGIA				
Augusta	RCAG	1.3	$15,000	$19,500
Columbus	RCAG	1.3	$15,000	$19,500
Rome	H	1.3	$15,000	$19,500
Vienna	VORTAC	254.1	$1,023	$260,000
ILLINOIS				
Springfield	OM	0.2	$105,000	$21,000
IOWA				
Davenport	VORTAC	73.8	$813	$60,000
KANSAS				
Anthony	VORTAC	73.0	$411	$30,000
Macksville	ARSR	5	$13,400	$67,000
KENTUCKY				
Bowling Grn	VORTAC	52.1	$6,622	$345,000
Jonesville	RMLR	5	$15,200	$76,000
LOUISIANA				
Lake Charles	OM	1	$33,000	$33,000
MICHIGAN				
Romulus	MM	0.22	$227,273	$50,000
MISSOURI				
Kansas City	OM	0.2	$125,000	$25,000
Kirksville				$30,000
NEW HAMPSHIRE				
Berlin	VOR	77	$974	$75,000

FISCAL YEAR 1991 PLANNED LAND ACQUISITIONS

CITY/STATE	FACILITY	NUMBER OF ACRES	COST PER ACRE	TOTAL COST
NEW MEXICO				
Deming	RMLR	1.5	$13,333	$20,000
Double Eagle II	OM	0.3	$110,000	$33,000
Fort Craig	RMLR	1.5	$8,667	$13,000
NEW YORK				
Watertown	VORTAC	45	$4,178	$188,000
Wellsville	VORTAC	45	$1,222	$55,000
OHIO				
Middletown	RCL	0.22	$181,818	$40,000
Oberlin	ARTCC	5	$24,000	$120,000
Woodville	RCL	0.23	$152,174	$35,000
TENNESSEE				
Tri-City	OM	1.8	$17,222	$31,000
TEXAS				
Amarillo	RCL	1.7	$20,588	$35,000
Caldwell	RMLR	1.5	$16,667	$25,000
Llano	VORTAC	55	$1,818	$100,000
Midland	ASR	3	$8,000	$24,000
Stonewall	VORTAC	80	$1,500	$120,000
Tuscola	VOR	80	$975	$78,000
Wichita Falls	RCAG	12.7	$3,937	$50,000
VIRGINIA				
Chantilly	OM	0.2	$600,000	$120,000
WISCONSIN				
Eau Claire	VORTAC	42.8	$1,636	$70,000
Subtotal				$2,776,500
ALG				$223,500
Total Program				$3,000,000

SEI CONTRACTOR COMPENSATION PAID

Mr. **Coughlin**. Please provide for the record a breakdown of yearly compensation paid to each SEI contractor broken down by basic contract costs and award fees for fiscal 1989, similar to the data shown on page 865 of last year's hearing record.

[The information follows:]

[Amounts in dollars]

Fiscal year 1989	Cost	Award fee	Total
Martin Marietta [1]	106,042,900	9,627,771	115,670,671
ARINC	9,216,852	726,349	9,943,201
Advanced Systems Technologies, Inc	524,568		524,568
BTG, Inc	2,724,247	225,383	2,949,630
James W. Collins & Associates	165,993		165,993
Engineering & Economics Research, Inc	1,787,243		1,187,243
Logicon, Inc	6,445,019	1,178,904	7,623,923
The Ralph M. Parsons Co	14,314,593	533,981	14,848,574
SOHAR, Inc	253,659		253,659
Stanford Telecommunications, Inc	3,685,958	532,866	4,218,824
Systems Control Technoloy, Inc	3,776,495	351,660	4,128,155
Systems Requirements & Service Associates, Inc	1,899,297		1,899,297
Other	148,438		148,438

[1] Figures include SEI subcontractor as detailed below.

SEI STAFFING TABLE

Mr. **Coughlin**. Please also update for the record the SEI staffing tables found on page 866 of last year's hearing record, and please explain any variance from last year's submission.

[The information follows:]

TOTAL SEI STAFFING

Fiscal year	Baseline estimate	Previous estimate [1]	Current	Variance previous years
1984	287	[2] 333	333	0
1985	490	[2] 736	736	0
1986	799	[2] 1,063	1,063	0
1987	977	[2] 1,133	1,133	0
1988	1,056	[2] 1,217	1,189	−28
1989	1,072	[2] 1,157	1,177	+20
1990	970	1,018	1,085	+67
1991	872	868	872	+4
1992	733	688	709	+21
1993	530	589	589	0
1994	452	497	497	0

[1] The total SEI staffing numbers include Martin Marietta and subcontractor staffing.

[2] Actuals.

Note: The changes in fiscal year 1989 and later years staffing reflect minor adjustments for anticipated funding. Outyear staffing estimates are based on projected requirements, labor rates, and budgets.

AVERAGE SEI CONTRACT STAFF YEAR COSTS

Mr. **Coughlin**. What is the average staff year cost under the SEI contract for fiscal years 1989, 1990, and 1991?

[The information follows:]

Average staff year cost (no fee)

Fiscal year:	
1989	$112,152
1990	116,436
1991	121,164

SEI AWARD FEE

Mr. COUGHLIN. Please update for the record the SEI award fee data shown on page 881 of last year's hearing record.

[The information follows:]

SEI AWARD FEE—1989

[Formerly titled employee benefits]

Period	Award fee pool	Amount awarded	Percent award
1. February 1984 to July 1984	$1,391,655	$1,078,532	77.5
2. August 1984 to January 1985	2,097,138	1,727,810	82.4
3. February 1985 to July 1985	3,310,534	2,421,494	73.1
4. August 1985 to January 1986	4,379,694	3,294,861	75.2
5. February 1986 to July 1986	5,131,049	3,741,831	72.9
6. August 1986 to January 1987	5,818,663	4,055,891	69.7
7. February 1987 to July 1987	6,706,778	5,086,225	75.8
8. August 1987 to January 1988	6,935,242	5,135,335	74.0
9. February 1988 to July 1988	2,422,472	5,528,021	74.5
10. August 1988 to January 1989	7,257,207	5,289,055	72.9
11. February 1989 to July 1989	5,708,837	4,338,716	76.0
12. August 1989 to January 1990	5,632,282	(1)	(1)

[1] Undetermined at this time.

SEI AWARD FEE

Mr. COUGHLIN. For the past five years, the SEI has consistently been earning about 70 to 75 percent of the available award fee. Is such a figure considered by the FAA to represent poor, good, or excellent performance?

Mr. POZESKY. There have been recent performance improvements by the SEI. They are now earning 75 to 76 percent, and that could go higher. I would give that a high B, above average.

Mr. COUGHLIN. Aren't you required to budget for the entire award fee available, and if so, what do you do with the unearned award fees?

Mr. POZESKY. That pays for unanticipated costs such as regional leased space associated with the SEI folks located in a region.

Mr. COUGHLIN. We don't get that back?

Mr. POZESKY. No, sir. We put it to good use.

Mr. COUGHLIN. How much of the fiscal year 1991 budget request is estimated for SEI contract award fees, and what percentage of earned award fee is assumed?

[The information follows:]

A total of $9,203,571 of the FY 1991 budget request is estimated for the SEI contract award fees. It is assumed that 100% of the fee will be awarded. Any part of this amount not awarded is used to fund unplanned costs such as contractor cost overruns, requirements for leased space in the regions, etc.

ATC SYSTEMS REQUIREMENTS CONTRACTOR

Mr. COUGHLIN. Please also update for the record the data on staffing for the ATC system requirements contractor as shown on pages 883-885 of last year's hearing record.

[The information follows:]

The term "MTS" refers to MITRE Members of the Technical Staff which provides the professional scientists or engineers actively and directly engaged in performing development, planning, system engineering, research, and experimentation, and technical support. The MTS estimates and actuals are provided on an FTE basis.

Total MITRE Technical Staffing (MTS)

	Original MTS Estimate	Current MTS Estimate	Variance from Original Est.	Sub-Contract FTEs	Contract Total Value
Fiscal Year:					
1984	261	* 249	(12)	* 8	* $29,945
1985	285	* 279	(6)	* 14	* 33,407
1986	250	* 242	(8)	* 2	* 29,458
1987	234	* 231	(3)	* 7	* 34,228
1988	255	* 240	(15)	* 17	* 38,004
1989	255	* 259	4	* 37	* 43,219
1990	255	258	3	37	** 52,506
1991	255	255	0	49	** 59,014

* Actuals

** Projected Contract Value

Note: Actual man-year costs should not be calculated from this data as it does not reflect other direct labor, but does include other direct charges.

The information provided is the average projected staffing (in FTEs) for FY 1991. MITRE and subcontractor staffing are subject to change, but will generally maintain the proposed level unless special initiatives or contract negotiation warrant otherwise. The "Other Direct Labor" information reflects a cadre of support staff for MITRE's professional technical staff members (MTS).

Fiscal Year 1991 MITRE Staffing

	Est. FTEs	Former FAA
MITRE Corporation (MTS)	255	0
Other Direct Labor	100	0
Planning Systems Inc.	39	0
Technology Services Corp.	3	0
Miscellaneous Consultants	7	1 *

* The actual number of former FAA employees working for MITRE, including all subcontractors is 1, contributing approximately 320 labor-hours, or less than 1 percent of the current work force.

Labor Grade	Number	Percent of Total
Technical Management		
1	255	71
2	9	3
3	44	12
Clerical/Administrative		
1	51	14

SYSTEMS ENGINEERING AND TECHNICAL ASSISTANCE

Mr. COUGHLIN. In January of this year, you awarded a three-year, $138 million contract to TRW Corporation for systems engineering and technical assistance. What is the nature of this contract, and why was it necessary to add a third major systems contractor, given your existing arrangements?

Mr. GOLDMAN. The nature of this contract is support for current automation systems, sustaining and improving them until they are replaced by AAS. This type of effort is outside the scope of the current SEI contract and therefore we did have to go competitive to get this work done. Martin Marietta bid on this and did have a opportunity to do this job and win this.

The contract really replaced an earlier SIM contract that we had with RCA that ended in the summer of 1988.

Mr. COUGHLIN. For the record, please expand on your answer, and include an explanation of the details of the TRW contract.

[The information follows:]

The TRW contract is a three-year contract with two one-year options for a total value of $138,972,000, including both options. It is an indefinite quantity, labor year contract. Support will be allocated between the Advanced Automation System, Voice Switching and Control System, and other automation programs. At a minimum, the following areas of expertise will be addressed: systems requirements; specification development; maintainability; system modeling; local communications network; technical planning; man-machine interfaces; operational evaluation; production evaluation; integrated logistics; operations concepts; reliability and availability; fault tolerance; performance analysis; interfaces; risk analysis; software testing; display engineering; site implementation; and, training.

TRW COSTS FOR FY 1991

Mr. COUGHLIN. How much is budgeted for the TRW contract in fiscal year 1991, and where is it located in the budget?

[The information follows:]

The fiscal year 1991 facilities and equipment budget request includes $15.9 million for TRW. Amounts are included in the Advanced Automation System, Voice Switching and Control System, En Route Software Development and Support, Terminal Software Development and Support, Interim Support Plan, and Mode C Intruder budget items to fund the TRW support that will be allocated to those programs during fiscal year 1991.

FREQUENCY AND SPECTRUM ENGINEERING

Mr. COUGHLIN. On page 113, you are requesting $1.9 million for studies related to frequency and spectrum engineering. Can you provide some examples of how these studies benefit air travellers, and could you explain how your work is coordinated with similar studies sponsored by the Departments of the Army, Navy, and Air Force and NASA?

Mr. AQUILANO. Examples of electromagnetic capabilities studies, are in the area of the next generation weather radar to obtain additional 100 megahertz of spectrum for interference free operation, and establish a frequency assignment plan for 160 of those systems. This will provide commercial and general aviation pilots the best weather information available for a safer airspace system.

Providing additional air ground communications channels is another example which will relieve the general aviation congestion problems.

Additionally, coordination of spectrum engineering studies with FAA, DOD, and NASA is another area in which FAA did the program with cooperation of the DOD and the Department of Commerce. The FAA also participates with the National Telecommunications and Information Administration, NTIA, in the conduct of spectrum studies involving all government agencies.

Mr. COUGHLIN. Are you sure you are not duplicating what other agencies are doing?

Mr. AQUILANO. Our principal concern is in the aviation area, and we take responsibility for that. We try not to duplicate and coordinate closely with NASA, the DOD, Commerce and others on these projects.

HUMAN RESOURCE MANAGEMENT PLAN FOR NAS TRANSITION

Mr. COUGHLIN. For the record, please provide details on your goals and objectives for the human resource management plan for NAS transition.

[The information follows:]

The FAA will publish a human resource plan in August to address the requirements and strategies for transition to 3 major systems—Initial Sector Suite Subsystem (ISSS), Voice Switching and Control System (VSCS), and Peripheral Adaptor Module Replacement Item (PAMRI). These systems have major impact in terms of training and staffing. The 1990 plan, which addresses the FY 1991-1995 timeframe, is currently under review.

In May, FAA will decide on the next set of systems to be addressed in the 1991 plan. Each year the plan will address additional systems.

Mr. COUGHLIN. Will this also encompass non-NAS Plan F&E projects? If not, why not?

[The information follows:]

No, the NAS HRM Plan addresses staffing and training issues based on projections of the number of people and the skill requirements necessary to operate, staff, and maintain new NAS equipment.

The non-NAS F&E Plan projects are designed to enhance NAS Plan provided hardware/software and to deploy additional amounts of established NAS Plan type technology.

Mr. COUGHLIN. Last year, you told us that the major NAS Plan contractors did not have the capacity or skill mix to write such a human resource plan (p. 888). Since the NAS Plan funds some of the country's largest private firms including IBM, Martin Marietta, and AT&T, it's a little hard to believe that they don't have expertise in human resource planning. So we ask you once again, and maybe you can answer in more detail: why can't this work be done in-house by FAA with support from existing contractors?

[The information follows:]

The NAS Plan contractors are experts in the development of system specifications and system design, not human resource planning. Although they have completed ergonomic studies for the new systems, they have not conducted the human resources analyses that allow FAA to address potential limitations to the human resource component in systems designs.

The NAS HRM Plan contractors currently working with FAA have expertise in deriving human resource requirements from systems whose design is "fixed." They are skilled in identifying and addressing staffing, skill mix, and training issues through a multi-disciplinary approach that employ engineering psychologists, operations research analysts, personnel specialists, AF technicians, and ATC specialists.

The contracting support requires no more funding than would be required by NAS Plan contractors. Use of the NAS HRM contractors does assure that the funding is used to acquire the best expertise in human resource planning.

ADVANCED DESIGN & MANAGEMENT CONTROL

Mr. COUGHLIN. Provide a listing of the activities, reports, analyses, and other work performed under the Advanced Design & Management Control contract for fiscal year 1990 and planned for 1991.

[The information follows:]

The contract with Metters to support the Executive Director for Acquisition in the NAS oversight process was awarded in April 1990, and the first task has not yet been finalized.

Planned tasks for the remainder of FY 1990 and FY 1991 include reviewing the process for developing the specifications for new programs, assisting AXQ in developing acquisition streamlining techniques, and performing independent cost, schedule, and/or technical assessments.

Some of the new programs that are candidates for review include but are not limited to the ASR-10; Aircraft Modernization Program; National Airspace Management Facility; Parallel Runway Monitors; Terminal ATC Automation; Airport Surface Traffic Automation; and Improved Capacity of Closely Spaced Converging Runways.

Mr. COUGHLIN. This contract is designed to provide an independent assessment of NAS Plan acquisitions. How do you ensure independence—does the contract include "revolving door" provisions and other specific controls?

Mr. STOER. Yes, sir. That contract was just recently awarded earlier this month, the one that I believe you are referring to, and we do not yet have a list of task orders completely developed. This will provide support for the new Executive Director for Acquisition.

[The information follows:]

The Executive Director for Acquisition is resonsible for oversight of the acquisition process. In performing this function there is a need for contractor support to provide an outside opinion of certain aspects of program plans. We plan to use the support contract with Metters to provide this independent assessment where it is not possible or economical to use inhouse resources. We also plan to use the contractor to review certain aspects of ongoing programs where this is deemed appropriate.

OT&E SUPPORT

Mr. COUGHLIN. Please explain why your OT&E Support budget rises from $1.4 million to $4 million in fiscal year 1991, and provide a breakdown by F&E project tested/supported for each of those fiscal years.

[The information follows:]

The acquisition of major systems by the Federal Government constitutes one of the most crucial and expensive activities performed to meet national needs. Its impact is critical on technology, on the Nation's economic and fiscal policies, and on the accomplishment of Government agency missions in such fields as defense, space, energy and transportation. For a number of years, there has been deep concern over the effectiveness of the management of major system acquisitions. The report of the Commission on Government Procurement recommended basic changes to improve the process of acquiring major systems.

The OMB Circular A-109, based on the executive branch considerations of the Commission's recommendations, established policies for agencies to follow in acquiring major systems. It recommended:

"Each agency should provide strong checks and balances by ensuring adequate system test and evaluation."

"Full production may be approved when the agency's mission need and program objectives are reaffirmed and when system performance has been satisfactorily tested, independent of the agency development and user organizations."

To implement OMB's guidance, FAA established an Independent Operational Test and Evaluation staff in 1983 (Order 1810.2). That staff now reports to the Executive Director for Acquisition. It provides an independent assessment of the operational suitability and effectiveness of major systems acquisition to the FAA Administrator prior to KDP #4, the full production decision and prior to first site commissioning for those systems where OT&E was deferred to the acquisition phase of the program.

FAA employs an independent oversight concept rather than full independent operational test and evaluation to control costs, thus avoiding duplicate testing which is time consuming and expensive.

By design, the Office of IOT&E Oversight is a small cadre of multi-disciplined experts supported by contractors. The IOT&E Office currently oversees 13 programs or approximately $9.0 billion of the NAS Plan programs. In response to GAO's recommendations in the September 1989 report, "FAA Needs to Implement an Effective Testing Program," (GAO/IMTEC-89-62) the IOT&E Office will monitor other selected programs of significant operational impact.

Originally, the Office was to monitor major system acquisition programs and provide an independent assessment to the Administrator prior to KDP #4. For each of the systems the Office monitors, IOT&E oversight has been extended to the commissioning of the first system. Selected additional programs of significant operational impact will be identified in FY 1991. This additional workload on the staff's small cadre of experts requires substantial increased contractor support to the staff. This increase is reflected in the FY 1991 budget request.

SUMMARY OF IOT&E CONTRACT SUPPORT BY PROGRAM

Program	MY	$K
Fiscal year 1990:		
AAS	3.0	480
PAMRI		
ISSS		
ACCC		
TAAS		
TCCC		
AERA I/II		
VSCS	1.5	240
CWP	1.5	240
TDWR	1.5	240
ARSR-4	1.5	240
Total	9.0	1.4
Fiscal year 1991:		
AAS	5.0	850
PAMRI		
ISSS		
ACCC		
TAAS		
TCCC		
AERA I/II		
VSCS	2.0	340
CWP	2.0	340
TDWR	2.0	340
ARSR-4	2.0	340
MLS (demo program 1st buy, 2d buy)	2.0	340
MODE S	2.0	340
ASR-10	1.0	170
TCS	2.0	340
Other selected programs of significant operational impact	3.53	600
Total	23.53	4.0

HAZARDOUS WASTE MANAGEMENT

Mr. COUGHLIN. You are requesting $15 million to begin a large program (at least $83 million) of hazardous waste cleanup. How serious is this problem, and why has the FAA found itself in such a situation?

Mr. McDaniel. To date we have identified the need for an effort of approximately $100 million during the next 10 years in order to bring our facilities into compliance with the existing hazardous materials regulations. This is serious, but we believe that we have efforts under way and it is a manageable project.

We found ourselves in the situation partially because of military facilities which were taken over by FAA and partially as a result of things that we did on our own through research and development and management of the airspace. As did other government agencies and industries at the time, we followed the existing disposal practices, which we have now discovered are not environmentally sound, so we have some corrective action that we need to take.

Mr. Coughlin. Is this an asbestos problem?

Mr. McDaniel. No, disposal of hazardous materials such as PCPs or fuel used in situations—in Alaska this is a common problem as a result of facilities put in place there. It is common at our technical center and at the aeronautical center.

Mr. Coughlin. Why didn't you clean them up before you took them over?

Mr. McDaniel. At the time we thought they were following acceptable disposal practices.

Mr. Coughlin. Are the FAA's hazardous materials planning procedures adequate to avoid new problems of this type?

Mr. McDaniel. We hope so. It is possible we will discover needs beyond the $100 million, but we believe that we have in place sound procedures for disposal of existing materials and will not encounter new problems of this type.

CONTRACT SUPPORT SERVICES

Mr. Coughlin. On page 121, you are requesting $4.6 million for contract services in support of NAS Plan acquisition. Last year, you advised us that this contractor was not performing inherently governmental functions. Then you went on to say that his activities include production surveillance and contract administration. These certainly seem like activities normally conducted by the government. Would you provide a copy of relevant OMB guidance in this area and explain how this contract meets the intent of that guidance?

Mr. Goldman. Yes, sir. I would like to make it clear that the contractor is not providing contract services but contract support services. Their activities are limited to in-plant production surveillance and contract administration support. OMB circular A-76, paragraphs 6 and 7 were used as guidance in determining those functions that were or were not inherently governmental, and based on that review these functions did not result in an improper relationship.

[The information follows:]

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

August 4, 1983

CIRCULAR NO. A-76 (REVISED)

TO THE HEADS OF EXECUTIVE DEPARTMENTS AND ESTABLISHMENTS

SUBJECT: Performance of Commercial Activities

1. Purpose. This Circular establishes Federal policy regarding the performance of commercial activities. The Supplement to the Circular sets forth procedures for determining whether commercial activities should be performed under contract with commercial sources or in-house using Government facilities and personnel.

2. Rescission. OMB Circular No. A-76 (revised), dated March 29, 1979; Transmittal Memoranda 1 through 7; Supplement No. 1 to the Circular, dated March 1979.

3. Authority. The Budget and Accounting Act of 1921 (31 U.S.C. 1 *et seq.*), and The Office of Federal Procurement Policy Act Amendments of 1979 (41 U.S.C. 401 *et seq.*).

4. Background.

a. In the process of governing, the Government should not compete with its citizens. The competitive enterprise system, characterized by individual freedom and initiative, is the primary source of national economic strength. In recognition of this principle, it has been and continues to be the general policy of the Government to rely on commercial sources to supply the products and services the Government needs.

b. This national policy was promulgated through Bureau of the Budget Bulletins issued in 1955, 1957 and 1960. OMB Circular No. A-76 was issued in 1966. The Circular was revised in 1967 and again in 1979.

5. Policy. It is the policy of the United States Government to:

a. Achieve Economy and Enhance Productivity. Competition enhances quality, economy, and productivity. Whenever commercial sector performance of a Government operated commercial activity is permissible, in accordance with this Circular and its Supplement, comparison of the cost of contracting and the cost of in-house performance shall be performed to determine who will do the work.

b. Retain Governmental Functions In-House. Certain functions are inherently Governmental in nature, being so intimately related to the public interest as to mandate performance only by Federal employees. These functions are not in competition with the commercial sector. Therefore, these functions shall be performed by Government employees.

c. Rely on the Commercial Sector. The Federal Government shall rely on commercially available sources to provide commercial products and services. In accordance with the provisions of this Circular, the Government shall not start or carry on any activity to provide a commercial product or service if the product or service can be procured more economically from a commercial source.

6. Definitions. For purposes of this Circular:

a. A commercial activity is one which is operated by a Federal executive agency and which provides a product or service which could be obtained from a commercial source. A commercial activity is not a Governmental function. A representative list of such activities is provided in Attachment A. A commercial activity also may be part of an organization or a type of work that is separable from other functions or activities and is suitable for performance by contract.

b. A conversion to contract is the changeover of an activity from Government performance to performance under contract by a commercial source.

c. A conversion to in-house is the changeover of an activity from performance under contract to Government performance.

d. A commercial source is a business or other non-Federal activity located in the United States, its territories and possessions, the District of Columbia or the Commonwealth of Puerto Rico, which provides a commercial product or service.

e. A Governmental function is a function which is so intimately related to the public interest as to mandate performance by Government employees. These functions include those activities which require either the exercise of discretion in applying Government authority or the use of value judgment in making decisions for the Government. Services or products in support of Governmental functions, such as those listed in Attachment A, are commercial activities and are normally subject to this Circular. Governmental functions normally fall into two categories:

(1) The act of governing; i.e., the discretionary exercise of Government authority. Examples include criminal investigations, prosecutions and other judicial functions; management of Government programs requiring value judgments, as in direction of the national defense; management and direction of the Armed Services; activities performed exclusively by military personnel who are subject to deployment in a combat, combat support or combat service support role; conduct of foreign relations; selection of program priorities; direction of Federal employees; regulation of the use of space, oceans, navigable rivers and other natural resources; direction of intelligence and counter-intelligence operations; and regulation of industry and commerce, including food and drugs.

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(2) Monetary transactions and entitlements, such as tax collection and revenue disbursements; control of the treasury accounts and money supply; and the administration of public trusts.

f. A cost comparison is the process of developing an estimate of the cost of Government performance of a commercial activity and comparing it, in accordance with the requirements in Parts II, III, and IV of the Supplement, to the cost to the Government for contract performance of the activity.

g. Directly affected parties are Federal employees and their representative organizations and bidders or offerors on the instant solicitation.

7. Scope.

a. Unless otherwise provided by law, this Circular and its Supplement shall apply to all executive agencies and shall provide administrative direction to heads of agencies.

b. This Circular and its Supplement apply to printing and binding only in those agencies or departments which are exempted by law from the provisions of Title 44 of the U.S. Code.

c. This Circular and its Supplement shall not:

(1) Be applicable when contrary to law, Executive Orders, or any treaty or international agreement;

(2) Apply to Governmental functions as defined in paragraph 6.e.;

(3) Apply to the Department of Defense in times of a declared war or military mobilization;

(4) Provide authority to enter into contracts;

(5) Authorize contracts which establish an employer-employee relationship between the Government and contractor employees. An employer-employee relationship involves close, continual supervision of individual contractor employees by Government employees, as distinguished from general oversight of contractor operations. However, limited and necessary interaction between Government employees and contractor employees, particularly during the transition period of conversion to contract, does not establish an employer-employee relationship. Additional guidance on this subject is provided in the Federal Personnel Manual issued by the Office of Personnel Management;

(6) Be used to justify conversion to contract solely to avoid personnel ceilings or salary limitations;

(7) Apply to the conduct of research and development. However, severable in-house commercial activities in support of research and development, such as those listed in Attachment A, are normally subject to this Circular and its Supplement; or

(8) Establish and shall not be construed to create any substantive or procedural basis for anyone to challenge any agency action or inaction on the basis that such action or inaction was not in accordance with this Circular, except as specifically set forth in Part I, Chapter 2, paragraph I of the Supplement, "Appeals of Cost Comparison Decisions."

8. Government Performance of a Commercial Activity. Government performance of a commercial activity is authorized under any of the following conditions:

a. No Satisfactory Commercial Source Available. Either no commercial source is capable of providing the needed product or service, or use of such a source would cause unacceptable delay or disruption of an essential program. Findings shall be supported as follows:

(1) If the finding is that no commercial source is capable of providing the needed product or service, the efforts made to find commercial sources must be documented and made available to the public upon request. These efforts shall include, in addition to consideration of preferential procurement programs (see Part I, Chapter 3, paragraph C of the Supplement), at least three notices describing the requirement in the Commerce Business Daily over a 90-day period or, in cases of bona fide urgency, two notices over a 30-day period. Specifications and requirements in the solicitation shall not be unduly restrictive and shall not exceed those required of in-house Government personnel or operations.

(2) If the finding is that a commercial source would cause unacceptable delay or disruption of an agency program, a written explanation, approved by the assistant secretary or designee in paragraph 9.a. of the Circular, must show the specific impact on an agency mission in terms of cost and performance. Urgency alone is not adequate reason to continue in-house operation of a commercial activity. Temporary disruption resulting from conversion to contract is not sufficient support for such a finding, nor is the possibility of a strike by contract employees. If the commercial activity has ever been performed by contract, an explanation of how the instant circumstances differ must be documented. These decisions must be made available to the public upon request.

(3) Activities may not be justified for in-house performance solely on the basis that the activity involves or supports a classified program or the activity is required to perform an agency's basic mission.

b. National Defense.

(1) The Secretary of Defense shall establish criteria for determining when Government performance of a commercial activity is required for national defense reasons. Such criteria shall be furnished to the Office of Federal Procurement Policy, OMB, upon request.

(2) Only the Secretary of Defense or his designee has the authority to exempt commercial activities for national defense reasons.

c. Patient Care. Commercial activities performed at hospitals operated by the Government shall be retained in-house if the agency head, in consultation with the agency's chief medical director, determines that in-house performance would be in the best interests of direct patient care.

d. Lower cost. Government performance of a commercial activity is authorized if a cost comparison prepared in accordance with Parts II, III and IV of the Supplement demonstrates that the Government is operating or can operate the activity on an ongoing basis at an estimated lower cost than a qualified commercial source.

9. Action Requirements. To ensure that the provisions of this Circular and its Supplement are followed, each agency head shall:

a. Designate an official at the assistant secretary or equivalent level and officials at a comparable level in major component organizations to have responsibility for implementation of this Circular and its Supplement within the agency.

b. Establish one or more offices as central points of contact to carry out implementation. These offices shall have access to all documents and data pertinent to actions taken under the Circular and its Supplement and will respond in a timely manner to all requests concerning inventories, schedules, reviews, results of cost comparisons and cost comparison data.

c. Be guided by OFPP Policy Letter No. 78-3, "Requests for Disclosure of Contractor-Supplied Information Obtained in the Course of a Procurement," in considering requests for information supplied by contractors.

d. Implement this Circular and its Supplement within 90 days after its issuance with a minimum of internal instructions. Cost comparisons shall not be delayed pending issuance of such instructions. Copies of the implementing instructions and any subsequent changes, the appeals procedure required in Part I, Chapter 2, paragraph I of the Supplement, and the names of the designated officials in paragraph 9.a. and the offices in paragraph 9.b. will be forwarded to the Office of Federal Procurement Policy, OMB.

e. Ensure the initial reviews of all existing in-house commercial activities are completed in accordance with Part I, Chapter 1, paragraph C.1. of the Supplement by September 30, 1987.

10. Annual Reporting Requirement. No later than March 15 of each year, agencies shall submit to the Office of Federal Procurement Policy a report on the implementation of OMB Circular No. A-76, in accordance with instructions in Part I, Chapter 4 of the Supplement.

11. OMB Responsibility and Contact Point. All questions or inquiries should be submitted to the Office of Management and Budget, Office of Federal Procurement Policy, 726 Jackson Place, NW, Room 9013, Washington, DC 20503. Telephone number (202) 395-6810.

12. Effective Date. This Circular and its Supplement are effective immediately, but need not be applied where a cost comparison was begun, using the March 1979 Circular, prior to the effective date.

13. Review. The policy in this Circular will be reviewed no later than four years from the date of issuance.

David A. Stockman

David A. Stockman
Director

EXAMPLES OF COMMERCIAL ACTIVITIES[1]

Audiovisual Products and Services

Photography (still, movie, aerial, etc.)
Photographic processing (developing, printing, enlarging, etc.)
Film and videotape production (script writing, direction, animation, editing, acting, etc.)
Microfilming and other microforms
Art and graphics services
Distribution of audiovisual materials
Reproduction and duplication of audiovisual products
Audiovisual facility management and operation
Maintenance of audiovisual equipment

Automatic Data Processing

ADP services — batch processing, time-sharing, facility management, etc.
Programming and systems analysis, design, development, and simulation
Key punching, data entry, transmission, and teleprocessing services
Systems engineering and installation
Equipment installation, operation, and maintenance

Food Services

Operation of cafeterias, mess halls, kitchens, bakeries, dairies, and commissaries
Vending machines
Ice and water

Health Services

Surgical, medical, dental, and psychiatric care
Hospitalization, outpatient, and nursing care
Physical examinations
Eye and hearing examinations and manufacturing and fitting glasses and hearing aids
Medical and dental laboratories
Dispensaries
Preventive medicine
Dietary services
Veterinary services

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[1] This list should be used in conjunction with the policy and procedures of the Circular to determine an agency's A-76 commercial activities inventory. It has been compiled primarily from examples of commercial activities currently contracted or operated in-house by agencies. It should not be considered exhaustive, but should be considered an aid in identifying commercial activities. For example, some Federal libraries are primarily recreational in nature and would be deemed commercial activities. However, the National Archives or certain functions within research libraries might not be considered commercial activities. Agency management must use informed judgement on a case-by-case basis in making these decisions.

Industrial Shops and Services

Machine, carpentry, electrical, plumbing, painting, and other shops
Industrial gas production and recharging
Equipment and instrument fabrication, repair and calibration
Plumbing, heating, electrical, and air conditioning services, including repair
Fire protection and prevention services
Custodial and janitorial services
Refuse collection and processing

Maintenance, Overhaul, Repair, and Testing

Aircraft and aircraft components
Ships, boats, and components
Motor vehicles
Combat vehicles
Railway systems
Electronic equipment and systems
Weapons and weapon systems
Medical and dental equipment
Office furniture and equipment
Industrial plant equipment
Photographic equipment
Space systems

Management Support Services

Advertising and public relations services
Financial and payroll services
Debt collection

Manufacturing, Fabrication, Processing, Testing, and Packaging

Ordnance equipment
Clothing and fabric products
Liquid, gaseous, and chemical products
Lumber products
Communications and electronics equipment
Rubber and plastic products
Optical and related products
Sheet metal and foundry products
Machined products
Construction materials
Test and instrumentation equipment

Office and Administrative Services

Library operations
Stenographic recording and transcribing
Word processing/data entry/typing services
Mail/messenger
Translation
Management information systems, products and distribution
Financial auditing and services
Compliance auditing
Court reporting
Material management
Supply services

Other Services

Laundry and dry cleaning
Mapping and charting
Architect and engineer services
Geological surveys
Cataloging
Training -- academic, technical, vocational, and specialized
Operation of utility systems (power, gas, water, steam, and sewage)
Laboratory testing services

Printing and Reproduction

Facility management and operation
Printing and binding -- where the agency or department is exempted from the provisions of Title 44 of the U.S. Code
Reproduction, copying, and duplication
Blueprinting

Real Property

Design, engineering, construction, modification, repair, and maintenance of buildings and structures; building mechanical and electrical equipment and systems; elevators; escalators; moving walks
Construction, alteration, repair, and maintenance of roads and other surfaced areas
Landscaping, drainage, mowing and care of grounds
Dredging of waterways

Security

Guard and protective services
Systems engineering, installation, and maintenance of security systems and individual privacy systems
Forensic laboratories

Special Studies and Analyses

- Cost benefit analyses
- Statistical analyses
- Scientific data studies
- Regulatory studies
- Defense, education, energy studies
- Legal/litigation studies
- Management studies

Systems Engineering, Installation, Operation, Maintenance, and Testing

- Communications systems — voice, message, data, radio, wire, microwave, and satellite
- Missile ranges
- Satellite tracking and data acquisition
- Radar detection and tracking
- Television systems — studio and transmission equipment, distribution systems, receivers, antennas, etc.
- Recreational areas
- Bulk storage facilities

Transportation

- Operation of motor pools
- Bus service
- Vehicle operation and maintenance
- Air, water, and land transportaton of people and things
- Trucking and hauling

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CONTRACT SUPPORT SERVICES MANYEAR COST

Mr. COUGHLIN. What is the average cost per manyear of support under this contract?

[The information follows:]

During FY 1989, the average cost per manyear of support under this contract was $91,700. This number includes the salary, overhead, general and administrative expenses, etc., which comprise the cost of supporting each position.

RESIDENT CONTRACT LIAISON OFFICES

Mr. COUGHLIN. For the record, please provide a listing of the location of your resident contract liaison offices, the staffing at each one, and the contractors covered.

[The information follows:]

During FY-89, the locations and staffing of our Contract Liaison Offices were as follows:

Contractor	Staffing	Location
IBM	4 COARS, 1 PSR	Gaithersburg, MD.
Martin Marietta	2 COARs	Washington, DC.
Westinghouse	3 COARs, 1.5 PSRs	Baltimore, MD.
Norden	.75 COAR, .5 PSR	Long Island, NY.
Raytheon (TSSC)	1 COAR	Washington, DC.
Raytheon (TDWR)	1 COAR, .5 PSR	Boston, MA.
Unisys	1 COAR, .5 PSR	Minneapolis, MN.
Unisys	1 COAR, .5 PSR	Paoli, PA.
Hazeltine	.25 COAR	Long Island, NY.
AT&T	1 COAR	McLean, VA.
AT&T	2 COARs, 1 PSR	Greensboro, NC.
Harris	1 COAR, .5 PSR	Melbourne, FL.
Sonicraft	1 COAR, .5 PSR	Chicago, IL.

COAR: Contracting Officer's Administrative Representative.
PSR: Production Surveillance Representative.

DOD CONTRACT SUPPORT SERVICES

Mr. COUGHLIN. To what extent, in man years, do you utilize the services of the Defense Contract Audit Agency (DCAA) or the Defense Contract Administration Service (DCAS) on a reimbursable basis?

[The information follows:]

DCAA utilizes 15.4 man years for any 12 month period.

DCAS provides approximately 1 man year of quality assurance on a reimbursable basis for FAA contracts.

AVIATION SAFETY ANALYSIS SYSTEM

Mr. COUGHLIN. On page 122, you are requesting $25.2 million for the Aviation Safety Analysis System (ASAS). As previously indicated, the CORN project is to include all general-purpose ADP applications. In view of this plan, why is almost $100 million needed for the aviation safety analysis system—why isn't this included as part of the CORN system?

Mr. STOER. Mr. Coughlin, the CORN system basically is our mainframe database management system. The funds included here for ASAS are basically for the acquisition of microcomputer terminals, work stations for our regulatory work force, our approximately 2500 safety inspectors.

This is a mature program in terms of the ASAS applications, but we currently do not have sufficient work stations for inspectors to use in the field. In fact, they often have to stand in line or share work stations in order to get access to data.

These are basically work stations that will be deployed in facilities so people can access mainframe databases.

Mr. COUGHLIN. Do you also have operations money for ASAS and is that in the $100 million?

Mr. STOER. We have a limited amount of money in the operations appropriations for ASAS support of the ongoing application work that we do in-house. ASAS is a system that has been maturing for over 10 years, and there are a number of applications that are currently used real time by industry. For example all of our airworthiness directives and minimum equipment lists are updated by ASAS using these systems.

Mr. COUGHLIN. In light of FAA's problems in properly defining its requirements in both administrative systems (such as CORN) and ATC systems (such as AAS), the committee is not convinced that all ASAS needs have been established to sufficiently justify hardware procurement and software development. Please provide us with the ASAS requirements which justify the specific hardware and software solution being proposed.

Mr. STOER. We can provide a specific answer for the record. What I would like to say is that this program has been under development for over 10 years. There are over 40 specific applications that are in existence, many of which are used today both by our security work forces to maintain data on currency of a variety of airport applications, our certification people use them for updating the records of airlines and manufacturers. A number of these ASAS applications are quite mature at this time. The problem that we have is insufficient number of work stations for inspectors. We have inspectors who have purchased their own microcomputers and brought them into the office because of their frustration with the inability of the agency to provide them with the tools to do their job. We think to get on with the program we need to buy work stations. For example, in our Miami district office they have a number of old Burroughs work stations that are eight years old, no longer capable of being repaired. That facility has been off line for two weeks because of lack of work stations in order for them to access data.

[The information follows:]

We have a 600 page encyclopedia which explains in detail the requirements and plans for each of the more than 40 ASAS project requirements which were discussed in these hearings as a basis for this request.

It is important to note that the Office of the Secretary of Transportation, The DOT Inspector General, The General Accounting Office, and the Office of Technology Assessment have each independently reviewed all of the major components of the ASAS. In every case, without exception, the FAA has been urged to request and expend the funds requested here. Not making these funds available will have a crippling effect on the ability of our safety and security inspectors and will make them unable to effectively perform day to day safety functions.

The ASAS program identified the need for automation equipment to support the Regulatory Standards and Compliance (AXR) workforce in a Workstation Sizing Requirements document published in 1985. Subsequently, the Agency's Office Automation Technology and Services (OATS) contract has established the basis for acceptable cost/benefit justifications for providing this level of automation equipment to clerical, technical, and managerial FAA staff.

ASAS FUNDING BREAKDOWN

Mr. COUGHLIN. Provide a breakdown of your $25.2 million request by maintenance of the existing system, system design, and Phase I of the hardware/software upgrade, and state whether funds for maintenance of the existing system are also included in the O&M account.

[The information follows:]

The breakdown of the $25.2 million is as follows:

	Millions
Maintenance of existing hardware	[1] 0
Application system design	$12.2
Phase I upgrade	13.0

[1] Maintenance of existing hardware is funded from the Operations budget.

ASAS SCHEDULE FOR PHASE I

Mr. COUGHLIN. Provide a detailed contracting schedule for the Phase I upgrade.

[The information follows:]

The acquisition of the microcomputer equipment for the Regulatory Standards and Compliance (AXR) organization, which includes the Phase I upgrade, will use the existing Agency Office Automation Technology and Services (OATS) contract and associated procurement process. Under this process the funds are obligated to the OATS vendor approximately two to four weeks after the submission of the procurement request. Our plan is to obligate these funds as soon as they are allocated to our program.

TRANSITION PLANNING, ENGINEERING AND COORDINATION

Mr. COUGHLIN. You are requesting $3 million for transition planning for NAS Plan projects. Does this project also include non-NAS Plan projects, and if not, why not?

[The information follows:]

The $3 million requested for transition planning also includes funding for supporting projects identified in the Other Capital Needs, Transition and DOD/FAA Operations Chapters of the September 1989 publication of the NAS Plan.

Mr. COUGHLIN. Why aren't funds included in the budget lines of the individual projects, and how far will only $3 million go?

[The information follows:]

The funds are not included in the budget lines of the individual projects so that a single coordinated integrated effort can be identified for a consistent approach from project to project throughout all regions and headquarters.

The $3 million request is the first year startup of a multiyear effort for which we anticipate awarding of contract in the third/fourth quarter of FY 1991.

LONG-RANGE INTERNATIONAL FLIGHT INSPECTION AIRCRAFT

Mr. COUGHLIN. On page 125, you are requesting $18.6 million as the first portion of a $106 million total procurement for an international long-range flight inspection aircraft. What are the requirements which make such a purchase necessary at this time?

Mr. STOER. Mr. Coughlin, we currently have five aircraft involved in our overseas flight inspection program, two based in

Tokyo, two in Frankfurt, and one long-range aircraft based in Honolulu. Those aircraft are 25 years old, limited in range, increasingly difficult to maintain for the scheduled flight inspections that they need to conduct.

The 727 in Hawaii currently is an aging aircraft. It has extensive structural problems, and we are long overdue for replacing these aircraft.

Mr. COUGHLIN. Your justification states that "due to the vacillating political climate throughout the world and changes in the locations of U.S. military activities, it is very difficult for the current fleet of aircraft which supports this activity to provide adequate response for international flight inspection needs." What does this mean?

Mr. STOER. That is a very good question on the part of the committee. That justification could clearly be written in a much clearer fashion.

Basically that means that we have in a number of areas special arrangements we need to make with foreign governments for our aircraft operations, and because of the limited range of some of our overseas flight inspection aircraft, especially in the ones based in Frankfurt but to a degree also the ones in Tokyo, they often have to make convoluted arrangements with foreign countries for overflight and refueling—problems that could be avoided if we had longer range aircraft that allow better arrangements.

Basically these aircraft do the airborne calibration of a variety of navigation aids at DOD facilities overseas as well as for a number of foreign countries, which is done on a reimbursable basis. The FAA is a leader in management of these aids and this is a mission that we have conducted for years.

ALTERNATIVE AIRCRAFT COST COMPARISON STUDY

Mr. COUGHLIN. The cost comparison study for alternative aircraft will be completed in the summer of 1990. Without that study, how did you arrive at your estimate of $18.6 million for fiscal year 1991—what assumptions did you make?

Mr. STOER. We basically have a good sense of what the range requirements are of the aircraft and the primary assumption that we were able to use was based on the range assumption of a 2500 to 3000 mile range. We were able to use a general industry and GSA data on what an aircraft of that type would cost, approximately $14 million. In addition there is $4- to $5 million worth of specialized on-board avionics we would need to have for that aircraft in order to make it capable of navigation aid inspection.

Mr. COUGHLIN. This is largely to support the DOD. Why shouldn't DOD pay for this project?

Mr. STOER. About 30 percent of our overseas requirement is to respond to the needs of foreign governments who do not maintain or have the resources to maintain a flight inspection capability of their own, in the Middle East, some areas of Africa, South America and the Far East. That mission is basically a mission that is performed by us as a civil agency of the U.S. government.

There are some nations with whom we do business that would be uncomfortable having military aircraft coming in and doing a

Mr. GOLDMAN. We have issued direction to all of our contracting officers as a reminder that an independent government estimate is required on all procurement requests that are over $25,000.

Mr. COUGHLIN. Please expand on your answer for the record.

[The information follows:]

A revised Acquisition Instruction was issued November 20, 1989, which provides for a screening of Procurement Requests (PRs) within the FAA headquarters Contracts Division before being assigned to a Contract Specialist. Among the PR contents to be verified is the inclusion of an Independent Government cost estimate for PRs over $25,000. If that estimate, or any other substantive data, is missing from the PR, and after allowing a reasonable time for it to be provided, the PR may be returned to the originator and not assigned for procurement processing.

On September 20, 1989, the FAA headquarters Contracts Division issued an Acquisition Instruction which requires the use of standardized Contract File Contents Checklists. Those checklists identify a comprehensive list of required file documents (with directives cross-references), including those for contract modifications. Those checklists are presently being used to organize and index contract files.

CONTRACT DEFINITIZATION PROBLEMS

Mr. COUGHLIN. In another report, they found that your delay in definitizing three contracts led to final contract prices which exceeded the government's estimate by $91 million. Why did this occur, and what have you done to ensure that undefinitized contract actions (UCAs) are minimized?

Mr. GOLDMAN. First, it really was not three contracts, it was three modifications to a single contract. And the delays were due to a lack of clear definition and of changing requirements, as has happened to us in the past. We are ensuring the contracts are defined prior to release of the change orders, and we are meeting with the contractors early in the proposal preparation process to facilitate anticipated proposal submissions.

Mr. COUGHLIN. For the record, please provide an estimate of the dollar value of F&E-funded UCAs and other unpriced orders which have been outstanding for six months or more.

flight inspection, where they have no problem having FAA come into their country and do the flight inspection of their navigational aids.

FY 1991 OBLIGATION PLAN

Mr. COUGHLIN. For the record, please provide a detailed breakdown of the fiscal year 1991 request and an associated obligation plan (month/year).

[The information follows:]

The breakdown is as follows:

CONTRACT AWARD

Action	Funds	Month/year
Purchase aircraft	$14,000,000	9/1991
Crew and maintenance training	200,000	9/1992
Ground support equipment	600,000	6/1992
Flight inspection retrofit	3,800,000	9/1991

UPGRADED DOD ATC FACILITIES

Mr. COUGHLIN. According to press reports, the DOD has not budgeted anywhere near the funding necessary to upgrade their air traffic control facilities consistent with the FAA modernization. Is this something we should be concerned about—will that have any effect on civil aviation?

[The information follows:]

The DOD has advised us that they have requested $35M in the FY 1991 budget to begin the process of upgrading their air traffic control facilities, and that the outyear requirements are being assessed at this time. Additional resources are anticipated in the FY 1992 budget.

HOST COMPUTER OPERATIONAL PROBLEMS

Mr. COUGHLIN. Last November, the Host Computer at the Leesburg Air Route Traffic Control Center experienced some significant operational problems, causing delays all along the eastern seaboard. What caused these problems, and what is your schedule for fixing them?

Mr. AQUILANO. Because of the faulty telephone cable at the Leesburg Traffic Control Center, the host computer stopped processing because it was unable to handle the input/output records. As resolutions for these two occurrences, the faulty Telco connection was repaired properly once the problem was isolated.

The reduced vulnerable routing was completed on 110 critical Telco circuits on 3-31-90.

The host computer program software was modified on November 8, 1989 to improve resistance to interruptions of this type.

IG REPORT ON PROCUREMENT PROBLEMS

Mr. COUGHLIN. A June 1989 DOT Inspector General report found that the FAA was not requiring independent cost estimates on a large percentage of procurements, and that almost one-third of your contract modifications were not properly documented. What have you done to address these findings?

Contract No.	Mod No.	Contractor	Description	Est. Amount
81-C-10036	0093	E-Systems, Inc	Change specs for Nadec Interface	$ 50,747
81-C-10036	0056	E-Systems, Inc	Change size requirements for Model 1 System	$ 10,500
81-C-10036	0045	E-Systems, Inc	Provide Model 1 equipment to be shipped to Academy in 3 stages	$ 900,000
81-C-10039		E-Systems, Inc.	Academy training system	$ 750,000
81-C-10039	0054	E-Systems, Inc	Delivery Schedule & Site Change	$ 57,800
81-C-10039	0056	E-Systems, Inc.	Negotiate site change, negotiate DUATS cancellation	$ 94,000
81-C-10049		E-Systems, Inc.	Completion of Model 1 software	$ 8,000,000
81-C-10049		E-Systems, Inc	Neg. post Model 1 software effort	$ 6,300,000
83-C-20027	0051	WEC	ASR-9 ECR#31	$ 371,095
83-C-20027	0050	WEC	ASR-9 Spare Parts	$ 2,116,486
83-C-20027	0049	WEC	ASR-9 ECR#35	$ 110,205
83-C-20027	0048	WEC	ASR-9 ECR#36	$ 1,135,000
83-C-20027	0047	WEC	ASR-9 ECR#29	$ 173,492
85-C-00007	D001	Unisys Corporation St. Paul, MN	Provide IBAG spares	$ 275,000
85-C-00007	D003	Unisys Corporation St. Paul, MN	Provide PC Emulators	$ 435,000
85-C-00040	0017	Unisys Corporation Paoli, PA	Reallocation of hardware, change in site delivery sequence, site reconfiguration, upgrade of software documentation, cancellation of training requirements	$ 1,998,839
85-C-00049	0010	Norden Systems, SSR/DMTI	Site spares and spare parts peculiar	$ 1,908,216
85-C-00049	0014	Norden Systems, SSR/DMTI	Additional 12 SSR/DMTI Kits	$ 7,374,298
86-C-00006	0034	Unisys Corporation St. Paul, MN	Upgrade system software from A5.05 to A6.02 release	$ 240,000

86-C-00034	0021	AT&T	RCE	$105,000,000
88-C-00004	0002	RSI	Antenna Installation Delay	$ 1[illegible],450
89-C-00002	0004	Raytheon Co.	TDWR, Software changes	$ 3,244,000

The above modifications, although not definitized as of this date, were all issued with the "Not To Exceed" amounts set forth above thereby limiting the Government's liability.

DOT IG REPORTS ON CONTRACT MODIFICATIONS

Mr. COUGHLIN. Also for the record, provide a summary of the audit findings and agency response to date for each of the following DOT IG reports: "Review of Contract Modifications in the DOT" (number AS-OT-9-017), 9/20/89; "Audit of Contract Modification Documentation, FAA" (number AV-FA-9-024), 6/9/89; "Report on Audit of Unilateral Modifications to the SEIC, FAA" (number AV-FA-8-026), 6/1/88.

[The information follows:]

Contract modification documentation

Files were not sufficiently documented to comply with Government and Departmental regulations so that fair and equitable adjustments could be made.

Lack of independent Government estimates, cost/price analysis or negotiation summaries.

Lack of required documentation may potentially compromise the Government's position in a dispute or litigation, and may not support that contracting personnel are adequately discharging their assigned duties and responsibilities.

Personnel shortages contribute to the lack of comprehensive pricing activities and file documentation.

Agency response

In October 1989, the Contracts Division reissued instructions to all contracting personnel reminding them of the requirement to obtain independent Government estimates for all Procurement Requests over $25,000 and that contract awards will not be approved without required documentation. Also, specialists are now required to use checklists to ensure that proper documentation is maintained and supervisors are required to review the files for compliance. In addition, periodic independent evaluations will be conducted.

Unilateral modifications to the SEIC

FAA procedures when issuing unilateral change orders needs improvement to accurately forecast the cost of contract modification and limit the Government's liability during negotiations.

For the 3 unilateral modifications review, the FAA underestimated costs and the modifications went undefinitized for nearly a year in two instances and nearly 3 years on the third.

Management of unilateral change orders require effective internal controls since the contractor is directed to begin work before the final price is agreed upon. Prior to issuance, FAA should prepare cost estimates, establish milestone dates and set funding limitations.

On future modifications, FAA should request the contractor to prepare proposals with limitations on costs that can be incurred.

Agency response

To minimize these types of delays in the future, we are ensuring that requirements are better defined prior to release of change orders and we are meeting with the contractor early in the proposal preparation process to facilitate adequate proposal submissions. In addition, the Logistics has instituted an automated tracking and reporting system for Undefinitized Letter Contract Reports and Not-To-Exceed contract modifications. Status is monitored weekly against a scheduled baseline to ensure that timely definitization of contract actions occurs.

VSCS PROGRAM DELAY

Mr. COUGHLIN. One final issue. We understand there is a further delay in the VSCS program. How do you explain this to us?

Mr. POZESKY. Both contractors have recently notified us that they have run into additional testing problems. We testified the other day that we expected award in August of 1990. It now looks like there will be at least a 30-day delay.

GAO REPORT ON COMMUNICATIONS SERVICES

Mr. COUGHLIN. According to a January 1990 GAO report, the FAA's organization for procuring communications services is fragmented, and could lead to problems in equipment compatibility, system integration, and network monitoring and control. Do you agree with the GAO, and if so, what steps are needed and what are your plans?

[The information follows:]

The establishment of a Telecommunications Management and Operations (TM&O) group resulted in the consolidation of many telecommunications functions. We believe that further integration of Telecommunications Operations, Administration and Maintenance (OA&M) is highly desirable and consistent with industry practices. The major FAA telecommunications organizations (TM&O, Systems Acquisition and Systems Engineering) are exploring issues such as clearer delineation of responsibilities, improved coordination and functional integration. Future technical and organizational decisions will be based in part on the high level objective to integrate OA&M.

COMMUNICATIONS SERVICES FUNDING PROFILE

Mr. COUGHLIN. For the record, provide a listing of FAA's budget for communications services for fiscal years 1989 through 1991.

[The information follows:]

[Amounts in dollars]

	Fiscal year—		
	1989	1990	1991
Operational telecommunications:			
DECCO	171,647	182,298	200,251
ARINC	9,609	9,636	9,910
Other	22,460	30,903	31,699
Administrative telecommunications	40,582	44,801	42,001
Total	244,298	267,638	283,861

Mr. COUGHLIN. Thank you, Mr. Chairman.

Mr. LEHMAN. We will take a five-minute break and we will then do the section on R&D.

[Recess.]

RESEARCH, ENGINEERING AND DEVELOPMENT

Mr. COUGHLIN. Why don't we, in the interest of time, resume.

Turn to Research, Engineering and Development. What do you believe your two or three most significant research and development accomplishments have been during the past year?

[The information follows:]

In the capacity area, FAA developed controller display aids for staggered and converging approaches which are being installed and tested in St. Louis in FY 1990. This software change will allow controllers to safely sequence aircraft approaching to two separate runways as if they were flying in-trail to the runways, significantly reducing arrival variability. This will allow use of additional runways at many airports to lower weather minimums resulting in a capacity gain of nearly 40 percent. Operational implementation is planned for 30 airports in FY 1993.

In the Aviation Security area, the Thermal Neutron Activation (TNA) system, developed under the R,E&D program, was deployed for operational test and evaluation

(OT&E) at New York Kennedy and Miami airports. Installation at London Gatwick and Dulles airports is scheduled for this year.

We also completed the installation of the Baltimore-Washington International Airport (BWI) enhanced security project. The demonstration will provide information on the effectiveness, operational impact, and cost-benefit of enhanced airport security procedures and equipment.

In the Aircraft Safety area, FAA advisory circulars associated with corrosion detection prevention and control were updated as related to the agency aircraft fleet. Training programs to incorporate the newer technologies have been developed. Presentation of this information to FAA maintenance and inspection personnel is underway.

In the aircraft separation area, the TCA II production installations were certified by the FAA and the systems are in operation on scheduled air carriers.

R&D MAJOR NEW EQUIPMENT

Mr. COUGHLIN. Would you indicate for the record any major new equipment you have completed the development of during the past year and any which you plan to complete during fiscal year 1990?

[The information follows:]

In FY 1989, the FAA developed and demonstrated a laboratory prototype converging approach spacing aid in the Terminal Air Traffic Automation (TATCA) program. The Aircraft Situation Display and supporting communications networks were developed in the Advanced Traffic Management System (ATMS) and installed in traffic management units at three en route centers and at the New York and Chicago Tracons. We finalized the development of the Traffic Alert and Collision Avoidance System II (TCAS II) by certificating the first production units. The FAA developed, installed and initiated testing at Raleigh-Durham and Memphis Airports of two differing concepts for high-update rate radar systems under the Landing Monitor for Closely Spaced and Converging Runways program. We completed and demonstrated at Boston's Logan Airport an expert systems based radar trainer for controllers.

In FY 1989, we also completed the development of a prototype Dynamic Ocean Track System (DOTS) and installed it at the Oakland Center for system evaluation for use in a cooperative program with the Japanese.

In FY 1990, the FAA will develop an eight-channel navigation receiver/processor which can operate utilizing the Soviet Global Orbiting Navigation Satellite System (GLONASS) and develop an integrated receiver/processor that will utilize the US Global Positioning System (GPS) in conjunction with LORAN C signals.

In FY 1990, under the Aeronautical Data Link Program, the FAA initiated demonstrations at Dallas/Fort Worth and Chicago Airports using the newly developed Tower Workstation Prototype Equipment develop under the research, engineering and development program which reduces tower/controller workloads through data link delivery of pre-departure clearances.

ARTS II ENHANCEMENT SYSTEMS

Mr. COUGHLIN. What is the status of your ARTS II enhancements systems which you indicated last year would be operational in September 1989?

[The information follows:]

The upgrade of all ARTS II systems with ARTS IIA hardware was completed in July 1989, to achieve early realization of improved reliability, maintainability, and supportability.

The first ARTS IIA enhancement software commissioning occurred at the Atlantic City, NJ air traffic control facility in March 1990.

The last ARTS IIA enhancement software commissioning is planned for August 1991.

R&D NEW FUNDING REQUESTS

Mr. COUGHLIN. Does your fiscal year 1991 request include funding for any new projects or programs?

[The information follows:]

Yes, the FY 1991 submission requests funding for new initiatives, including: 1. National Simulation lab; 2. Technology Transfer; 3. Graduate-Level Research and Education in Aviation Technology (GREAT); 4. R,E&D Advisory Committee; 5. Jet Route and Terminal Area Optimization; and 6. Airborne Windshear Advanced Technology.

MITRE

Mr. COUGHLIN. Last year, it was indicated that your work with Mitre would increase to about $48 million in fiscal year 1990.

Several years ago, we were told that the Mitre effort will diminish as the SEI contractor comes on board.

There are two years of Mitre peak workload, and then the SEI starts to substitute for some of the Mitre work.

Last year we were told that the SEI and Mitre perform different roles.

Has your policy regarding Mitre changed or did one of those previous witnesses give us an erroneous answer?

If the policy changed, what was the reason for this change?

Hasn't the SEI contractor been able to accomplish what you previously expected?

Mr. POZESKY. Well, we don't believe the policy has changed.

However, we are moving Mitre into a role of ATC systems development with much more of a systems engineering content.

We are proposing and have proposed in the Federal Register to go into a FFRDC mode with Mitre. We have to go through a formal process to do that.

We see Mitre involved with the FAA for a long time to come.

Mr. COUGHLIN. That still leaves us confused.

Mr. POZESKY. I am sorry. Let's try again.

Mr. COUGHLIN. Different roles or the same role?

Mr. POZESKY. Mitre is much more in advanced systems, the definition of what is coming down the road in the future.

Martin Marietta is focused in implementation of the current projects and programs in the NAS plan and helping us field the current deliverables.

MITRE PROJECTS

Mr. COUGHLIN. Would you provide for the record a list of those projects conducted by Mitre, including the costs associated with each for fiscal years 1990 and 1991?

[The information follows:]

MITRE projects [1]	FY 90 contract	FY 91 contract [2]
Maintenance System Development Support	$327,483	$347,132
Telecommunications, Management, and Operations	2,398,212	2,933,197
Interfacility Communications/Flight Information	1,707,093	1,645,016
Support for the Traffic Management System	0	392,085
Air Traffic Human Performance Improvement Support	530,469	727,678
Area Control Facility Operational/Implementation Studies	470,217	498,430
National Flight Data Center Aeronautical Information System	523,941	185,126
NAS Requirements	1,343,365	1,423,967
Terminal Air Traffic Control Automation (TATCA)	972,092	1,030,417
Automated En Route Air Traffic Control (AERA 3)	5,347,046	6,407,156
Satellite Naviation/Global Position System (GPS) Integrity	163,036	172,818
Airport Capacity Research	463,651	327,647
NAS Performance Analysis Capability	1,950,688	1,895,419

MITRE projects [1]	FY 90 contract	FY 91 contract [2]
Airport Capacity Enhancement	524,726	556,209
National Simulation Laboratory (Planning)	6,132,379	9,750,483
Future System Definition	668,105	1,416,383
Advanced Automation System Engineering	2,812,060	4,734,186
Advanced Automation System Development	4,299,654	3,675,510
Automated En Route ATC (AERA 2)	7,307,418	7,261,747
ATC Automation Division Engineering Support	1,036,277	549,227
Advanced Applications for Microwave Landing System (MLS)	734,441	389,254
Traffic Management System (TMS) Support	597,214	633,047
Automatic Dependent Surveillance (ADS)	1,181,789	1,252,696
Central Weather Processor (CWP) Support	504,411	356,450
Mode S Data Link Support	3,932,558	4,565,512
Traffic Alert and Collision Avoidance System (TCAS)	1,272,980	387,941
ACF Automation and ACF Backup	485,639	514,777
Communications Architecture and Systems Design	1,770,847	1,877,097
Data Link Requirements and System Definition	288,372	305,674
Surveillance Processing and Concept Alternatives	526,489	558,079
Weather Requirements Analysis and Validation	460,191	487,802
Operational Transition Analysis	1,207,326	959,824
ATC Effectiveness/Evaluation of ATCS Improvements	0	196,043
Safety Studies and Analysis (Aviation)	565,937	599,893
Total	52,506,102	59,013,921

[1] Reflects all projects regardless of funding source.
[2] FY 91 projected contract value is based on estimated requirements.

LINCOLN LABS

Mr. COUGHLIN. You also showed that your funding allocation to another non-profit organization, Lincoln Labs, had increased to over $30 million in fiscal year 1989.

What work is Lincoln Labs involved in and what is the nature of your contract with them?

Mr. POZESKY. Our contract with them is through the United States Air Force, an interagency agreement.

They do work in radar surveillance, automated systems development, precision runway monitors, and terminal automation.

They have been instrumental in the development of the terminal Doppler weather radar and satellite applications, a broad variety of applications in surveillance and weather.

LINCOLN LAB PROJECTS

Mr. COUGHLIN. Please provide for the record a list of those projects conducted by Lincoln Labs, including the costs associated with each for fiscal years 1990 and 1991.

[The information follows:]

[In thousands of dollars]

Project	Fiscal year—	
	1990	1991
Airport surface traffic automation (R,E&D)	$2,250	$4,000
Terminal ATC automation (R,E&D)	5,813	6,890
Mode S integrated tracker (R,E&D)	929	1,000
TCAS (R,E&D)	1,000	900
Aeronautical data link (R,E&D)	691	987
Precision runway monitor (R,E&D)	500	2,000

[In thousands of dollars]

Project	Fiscal year—	
	1990	1991
Separation standards (R,E&D)		90
Satellite applications (R,E&D)		1,300
Terminal weather radar (R,E&D)		150
Total (R,E&D)	11,183	17,317
Weather radar program/NEXRAD (F&E)	1,870	6,500
Mode S surveillance (F&E)	400	450
Parallel and converging runway monitor (F&E)	2,500	3,500
Replace ASR-4/5/6 radar system (F&E)	3,700	0
Replace ASR-9 radar system (F&E)	0	3,000
Establish ASDE-3 (F&E)	0	125
Terminal doppler weather radar (F&E)	8,030	0
Provide terminal NEXRAD	600	0
Total (F&E)	17,100	13,575
Grand total	28,283	30,892

UNOBLIGATED CARRYOVER

Mr. COUGHLIN. On page 2, you indicated that you had a $30.126 million unobligated carryover as of September 30, 1989.

What was the reason for this large carryover, particularly since none was projected in last year's budget?

Mr. POZESKY. We had problems in negotiating the final contracts with the TCAS III, some synthetic vision work with NASA, and tilt rotor projects.

Those have subsequently been resolved.

Mr. COUGHLIN. On page 9, why do you need 23 additional positions when your total R,E&D obligations are estimated to decrease in fiscal year 1991?

Mr. POZESKY. Two major thrusts, Mr. Chairman.

The Technical Center Explosives Detection Laboratory and CAMI positions associated with R&D for human factors concerns.

We are making a major emphasis in the human factors area.

R&D PC&B BY ACTIVITY

Mr. COUGHLIN. Please provide a personnel compensation cost breakdown by activity similar to that provided for F&E personnel on page F&E 144.

[The information follows:]

Personnel Compensation, Benefits, Travel, and Related Expenses by Budget Authority by Activity:

Activity	*PCB&T*
Air Traffic Control	$26,870
Advanced Computer	5,241
Navigation	1,459
Aviation Weather	1,339
Aviation Medicine	4,236
Aircraft Safety	10,131
Environment	0
Total	49,276

FUTURE SYSTEMS DEFINITION

Mr. COUGHLIN. Your first activity is air traffic control and the first subactivity under this heading is system research, for which you are requesting $14,899,000.

On page 15, why do you need a $625,000 increase for future system definition, particularly when you state that a future system framework and model will be developed in fiscal year 1990?

Mr. POZESKY. Much of this technology is for over-the-ocean flights.

Particularly, we are focusing on operational concepts for oceanic ATC using satellite communications and navigation surveillance capabilities, so-called automated dependent surveillance.

Also we will be using aircraft flight management to look at data link and other TCAS's to assure proper aircraft navigation.

Mr. COUGHLIN. To what extent will the roles of the pilot and controller change in future systems?

Mr. POZESKY. We see both of them moving into more of a management role where computer-to-computer link will take place.

The pilot and controller will function much more as system managers to look at the overall air traffic situation set ups and strategic approach to flying through the air space.

R&D PLAN MODIFICATIONS

Mr. COUGHLIN. On page 16, what modifications did you make to your R,E&D plan as a result of aviation industry comments?

Mr. POZESKY. We accelerated the runway incursion effort which we talked about in the F&E hearing, and we are now in the process of looking at ways to accelerate all of our R&D programs.

One of our thrusts in the administrative realignment is to link R&D and F&E much more closely together and we are taking a very intensive look at ways to get some of the R&D products into the field earlier.

We have some good ideas and I think you will be seeing that more and more as we go down the road.

VERTICAL SEPARATION STANDARDS

Mr. COUGHLIN. On page 17, what is your schedule for implementing a 1,000-foot vertical separation standard above 29,000 feet?

[The information follows:]

A data package suitable for use in preparing an FAA Advanced Notice of Proposed Rulemaking will be completed in FY 1990. The ICAO Review General Concept of Separation (RGCS) panel is expected to complete guidance material for implementing 1,000-foot vertical separation minimums between flight level (FL) 290 and FL 410 by the end of the calendar year 1990.

No decision has been made regarding 1,000-foot vertical separation minimums above FL 290 in the United States.

NATIONAL SIMULATION LAB

Mr. LEHMAN. You are requesting $4,082,000 in fiscal year 1991 for a national simulation laboratory and you indicate that you will be spending $57.5 million for this lab over the next four years.

What is this laboratory and why is it essential at this time?

Don't you currently test your new and proposed systems?

Mr. POZESKY. The fiscal year 1991 budget request is for an interim development lab at the Mitre Corporation to test the feasibility of using simulation for ATC-detailed applications.

Given that that is successful, we see down the road conducting a stand-alone laboratory, a national simulation laboratory, for a lot of R&D simulation.

We haven't selected the location, but we have a subcommittee of the R&D Advisory Committee working with us to try to identify the location.

BEACON RESEARCH

Mr. LEHMAN. On page 20, you are requesting $1,380,000 for beacon research. This includes $1,130,000 to develop a Mode S integrated tracker. Last year we were told that this is an integral part of your AAS program. When will you need to have this system developed and implemented?

Mr. POZESKY. We are looking at the 1996 to 1998 time frame for having this capability located at the radar surveillance site.

TCAS I

Mr. COUGHLIN. On pages 22 and 23, you are requesting $10,576,000 for your traffic alert and collision avoidance research.

When do you intend to make a decision on whether to undertake a TCAS-I source development and procurement program?

Mr. POZESKY. The $10 million does not include the TCAS-I source development. That decision is going to be made later this month.

The TCAS-I limited installation program decision will be made later this month among competing vendors.

The SDP program will probably not be underway until late 1991, if at all.

Mr. LEHMAN. What is the total estimated cost of your TCAS-I limited installation program and what would an SDP program cost?

[The information follows:]

The total estimated cost for a TCAS I limited installation program (LIP) is $2.8 million, and a source development program (SDP) would cost a total of $4 million.

TCAS II/III

Mr. LEHMAN. In past years, we have discussed the fact that the TCAS-II limited installation program was modified to enhance the TCAS-II units so that they can provide the capabilities of the TCAS-III operation.

What is the status of this effort?

Mr. POZESKY. One manufacturer is underway in his effort to upgrade a TCAS-II to TCAS-III.

His study is complete and it indicates the technical feasibility of such upgrading.

We are preparing an RFP to contract for the physical modification of a small number of TCAS-II units to actually include the TCAS-III capability.

Mr. LEHMAN. Last year we were told that $18 million would be required to certificate TCAS-III and conduct the limited installation testing program.

How much will you allocate to this effort in fiscal years 1990 and 1991 and what is the projected completion date?

[The information follows:]

Within the 1990 appropriation and the 1991 request, we are allocating $1.9 million and $4.2 million respectively to complete the TCAS III development, certification and limited installation program (LIP). We are currently planning to compete the TCAS III Lip in 1993.

NAVY'S COLLISION AVOIDANCE SYSTEM

Mr. LEHMAN. Last year when we discussed the fact that the navy was flight testing a collision avoidance system, we were told that the Navy's system is not Mode S compatible and the costs of their system were comparable to the active TCAS–I units.

Does your final rule require a Mode S transponder?

Mr. POZESKY. The final rule does not require a Mode S transponder for TCAS–I. It does for TCAS-II.

The Navy system, to the best of our knowledge, is still not compatible with Mode S.

Mr. LEHMAN. What is the status of the Navy program? Will the Navy's TCAS be adaptable for civilian use?

If it is adaptable, what impact will this have on general aviation and how was this taken into account in your planning for industry's adoption of this technology?

Mr. POZESKY. The Navy's program right now will flight test their system on a T–34C aircraft.

It could be applicable to general aviation use if those flight tests are successful.

At the moment, our look at it doesn't seem to have any significant cost advantage over the TCAS-I that we have been supporting, so I would characterize it as just another alternative.

COMMUNICATIONS RESEARCH

Mr. LEHMAN. You are requesting another $11,084,000 for communications research.

Last year you stated that you intended to complete the transition to the microwave link during calendar year 1992.

Is this project on schedule?

Mr. POZESKY. It is, and we hope to complete the transition in 1992 to the microwave system.

VSCS PROGRAM

Mr. LEHMAN. Do you intend to continue to fund your in-house VSCS program costs under your R,E&D account after you award the production contract?

[The information follows:]

The VSCS in-house costs will be funded by the R,E&D account through FY 1994. This is consistent with multi-year plans previously reported to Congress.

VSCS COSTS

Mr. LEHMAN. Would you update for the record the table included on pages 900 and 901 of last year's hearing record showing VSCS costs?

[The information follows:]

VOICE SWITCHING AND CONTROL SYSTEM

[In millions of dollars]

Fiscal year	R,E&D	F&E	Total
1987 and prior	$71.9		$71.9
1988	50.0		50.0
1989	1.4	$63.5	64.9
1990	1.1	172.2	173.3
1991	1.0	185.1	186.1
1992	1.1	222.2	223.2
1993	1.1	115.6	116.7
1994	1.2	99.0	100.2
1995	0	26.8	26.8
1996	0	8.0	8.0
Total	128.8	[1] 892.4	1,021.2

[1] $127.5 million in prototype development phase costs are funded by the F&E appropriation.

MODE S DATA LINK RESEARCH

Mr. LEHMAN. You are requesting $9,025,000 for Mode S data link research and you state that in the near term this system will provide data to the pilots thereby relieving the controller of voice transmissions.

How much will this increase your controller productivity?

[The information follows:]

No quantitative study has been done specifically to determine the increase in controller productivity, although other studies indicate a considerable net benefit in safety and efficiency.

A portion of the data link program, the predeparture clearance delivery demonstration, has already reduced voice traffic of the clearance delivery channel by 50 percent at Chicago and Dallas/Fort Worth airports.

Mr. LEHMAN. How soon will these near-term benefits be realized?

[The information follows:]

When we began transmitting weather products in 1992, concurrent with availability of the Mode S sensor and the Data Link Processor.

SYSTEM CAPACITY AND AIRPORTS RESEARCH

Mr. LEHMAN. On pages 27 through 36, you are requesting $33,773,000 for system capacity and airports.

About $72 million has been appropriated for this program in fiscal years 1988 through 1990.

Which aspect of an airport presents the most serious bottleneck, is it the air space, runways, gates, terminal, or what?

Mr. POZESKY. Clearly, it is the lack of runways and concrete to handle the capacity.

We are also looking at airspace procedures and technology for multiple runway configurations in IMC such as the Raleigh-Durham quick scan radar and Memphis quick scan radar, examples of technology making the most of concrete that we have on airports.

Mr. LEHMAN. With Memphis doing all this nighttime freight, they need something.

Mr. POZESKY. Yes, and we are looking at the possibility of providing them some additional help as well.

AIRPORT PAVEMENT RESEARCH

Mr. LEHMAN. You are requesting $1.9 million for airport pavement research. You have been conducting this type of research for years.

To what extent have you upgraded your minimum standards for airport pavements in recent years as a result of this research?

Mr. POZESKY. Our publication has been updated on overlay thickness criteria.

We have included design curves for high traffic volume pavements and we have design guidance for the use of non-destructive testing devices.

A new advisory circular providing criteria will be issued very soon and we hope to issue shortly various standards for off-peak runway construction techniques.

Not a very glamorous area, but a lot of technology and a lot of cost goes into pavement and it is important that we stay on this part of our R&D program.

AIRPORT RUNWAY CLOSURES

Mr. LEHMAN. Last year it was indicated that you are not notified of proposed runway closures.

If you are not notified of proposed runway closures, how do you assure that such closures do not cause air traffic delays throughout the system?

Mr. POZESKY. Well, I think we perhaps miscalculated or misclarified our answer.

We have notice of closures, particularly when they affect air traffic activities.

FAA works closely with the airport to ensure that these runway closures have the least possible impact on traffic.

I am sorry for the mischaracterization of last year's answer.

DE-ICING CHEMICALS

Mr. LEHMAN. On page 28, what new de-icing chemicals are you evaluating?

[The information follows:]

We are evaluating chemicals that will give better protection from freezing rain/snow/drizzle. These new chemicals differ from the existing chemicals now being used in that they prevent formation rather that only ice removal. Manufacturers producing these new chemicals include DOW, Union Carbide (Canada) and Octogon. We will be testing approximately 12 different de-icing and anti-icing chemicals. These tests will need to be conducted during appropriate test conditions, i.e. winter icing season of 1990 (Dec) through 1991 (March).

BIRD HAZARD ASSESSMENT

Mr. LEHMAN. Also on page 28, how do you envision airport operators using your bird hazard assessment model to reduce accidents?

[The information follows:]

When completed, the bird hazard assessment model will be used to provide guidelines on what tactics can be used and how to keep the bird density at a safe level in the airport environment. Airport operators will be able to utilize the model to determine the potential bird hazard impact of proposed new facilities in the airport environment and compare alternative locations and configurations.

AIRPORT LIGHTING

Mr. LEHMAN. On page 29, do you intend to promulgate rules regarding airport lighting and firefighting service?

If so, what is your schedule?

[The information follows:]

Yes, we intend to promulgate rules regarding aiport lighting and firefighting service after completion of relevant research and development (R&D) projects. Recently completed reports on lighting and marking R&D projects include: Improved Marking and Lighting of Taxiway Intersections for Instrument Flight Rules (IFR) Operations, (1989); Modified Touchdown Zone Lighting, (1990); and Evaluation of an Updated Design of an Internally Lighted Wind Cone (1989).

Reports recently completed on firefighting service address: Tests of the General Fire Suppression Concentrate—Pyrocap B-136, (1990); Test of Borolon, a Magnesium Fire Extinguishing Agent, (1989); and Full-Scale Air Transport Category Fuselage Burn-Through Tests (1990).

IFR TRIPLE/QUADRUPLE RUNWAY APPROACHES

Mr. LEHMAN. When do you expect to ~~have~~ national standards for IFR approaches to triple and quadruple parallel runways?

[The information follows:]

National standards for IFR approaches to multiple parallel runway are being developed. Using the Airport Radar Terminal System (ARTS) IIIA Simulation Facility at the FAA Technical Center in Atlantic City, New Jersey, we will simulate approaches to triple and quadruple runway configurations. A simulation of three runways separated by 4300 feet based on current standards and procedures, using existing equipment and ARTS IIIA radar systems is being conducted in 1990. The simulation will validate controller and pilot reaction to aircraft movement away from the extended centerlines. The initial simulation data and evaluation will be used to draft generic procedures for triple parallel approaches.

Simulations of quadruple parallel approaches is expected late in 1991 and expected to be completed in early 1992.

SIMULATION MODEL/CAPACITY IMPROVEMENTS

Mr. LEHMAN. On page 32, to what extent is your simulation model being used and what capacity improvements have resulted?

Mr. POZESKY. It is used quite extensively, Mr. Chairman. We are presently using it to evaluate airspace and airport configuration changes across the country.

We have used it to assess ways to improve the airspace in Los Angeles, Boston, Chicago, DFW, and Denver, and we are undertaking additional studies in Oakland, Sacramento, Kansas City, and New York.

We have identified realignment possibilities at DFW which would give us a 15 percent capacity gain.

We have looked at Los Angeles. We have actually made this model available to the general public.

Over 60 private organizations have acquired the model and are using it for their own internal airport planning activities.

It has been a very successful project.

Mr. LEHMAN. Did SIMMOD tell you to build another airport in Denver?

Mr. POZESKY. No, but we used it to give us an estimate as to how much additional airspace capacity we would get.

RALEIGH-DURHAM AIRPORT—PRECISION RUNWAY MONITOR

Mr. **LEHMAN**. On page 32, you are requesting $2 million to continue your evaluation of a precision runway monitor at Raleigh Durham Airport.

What is the status of your tests at RDU? How effectively is the system performing and when do you expect to certify it?

Mr. **POZESKY**. The system is performing quite well.

The tests are effective. We hope to complete the demonstration in July 1990.

That will be a formal completion of the demonstration and we will likely leave that equipment there and actually certify it for closely spaced dual parallel operations.

We will go on to look at the applications of converging runways with that kind of a technology.

The procedures for parallel and converging runways can and are different, and those need to be developed and explored.

WAKE VORTEX RESEARCH

Mr. **LEHMAN**. You are requesting $1,876,000 for wake vortex research.

Last year, it was indicated that since 1970, about $36 million has been spent on wake vortex research by your agency and NASA.

It was also indicated that the two major technical areas that you were working on were vortex alleviation and vortex sensor development.

Have you developed anything during the past year to address these two problem areas?

Mr. **POZESKY**. Yes.

We have been looking at something called a laser Doppler velocimeter and a bi-static radar.

Those technologies will let us measure the vortex in real time and hopefully are a prerequisite for an operational vortex advisory system.

Mr. **LEHMAN**. Would you update for the record the table on wake vortex research that was included on page 913 of last year's hearing record?

[The information follows:]

Wake vortex research

National Aeronautics and Space Administration:	
Estimated obligations: Fiscal year 1970–89	$11,373
Planned obligations:	
Fiscal year 1990	0
Fiscal year 1991	0
Total through fiscal year 1991	11,373
Federal Aviation Administration:	
Actual obligations: Fiscal year 1970–89	23,843
Planned obligations:	
Fiscal year 1990	1,570
Fiscal year 1991	1,876
Total through fiscal year 1991	27,289

AIRPORT SURFACE TRAFFIC AUTOMATION

Mr. **Lehman**. On page 33, you refer to a three-phase airport surface traffic automation program.

What is the schedule for implementing and completing each of these phases?

Mr. **Pozesky**. Mr. Chairman, we have a broad program starting with radar-based safety systems leading all the way through a runway incursion and elimination of runway incursions.

We have schedules that take us from 1992 into the year 2000. It is a continuing area of research and development.

We hope to get this ASDE-3 thing as our first product. I think you will see this area of research being emphasized in FAA in the future.

Mr. **Lehman**. Expand on that for the record.

[The information follows:]

Our schedule for implementing and completing each of the three ASTA phases is as follows:

ASTA-1 (A radar-based safety system designed to detect and prevent runway incursions).

ASTA-2 (Adds Mode-S Surveillance and Traffic Automation).

ASTA-3 (Adds Mode-S Data Link).

	Implementation contract Award	First ORD	Last ORD
ASTA-1	12/92	11/99	(No. 31) 5/01
ASTA-2	12/94	6/02	(No. 31) 5/04
ASTA-3	3/97	6/04	(No. 31) 6/06

Initial runway incursion detection capability based on ASDE-3 will be provided by AMASS.

Contract award for AMASS validation (1990).

ASDE-3 ORD No. 1 Pittsburgh (1990).

AMASS field validation at Pittsburgh (1991).

Production AMASS (1992).

ATC TERMINAL AUTOMATION SYSTEM

Mr. **Lehman**. You are requesting $7,582,000 for terminal ATC automation. What is the status of your operational evaluation of a final approach spacing aid?

Mr. **Pozesky**. We are beginning test and evaluation at St. Louis TRACON of a so-called ghosting technique in May 1990.

Given that that is successful, we will begin national implementation of that maybe six or seven months after that.

Mr. **Lehman**. Last year, it was indicated that your terminal ATC automation would increase throughput by about 28 percent at all major hubs.

Is this still a valid projection?

If so, what are the estimated costs to achieve this?

Mr. **Pozesky**. It is currently projected to do that in the long term. This is a 15-year program.

The R&D work is expected to cost $62 million in 1990 dollars.

Again, I would caution when you add the absolute value of the R&D work, it is probably going to go up when you look at the ten-year dollar cost.

AIRPORT CAPACITY TASK FORCE STUDIES

Mr. LEHMAN. You are requesting $2,151,000 for airport capacity task force studies.

To what extent have the recommendations made to Atlanta, Detroit, San Francisco, and St. Louis been implemented?

[The information follows:]

We are very pleased with the success rate of the airport capacity design teams in general. Of the four locations mentioned, Detroit has the best record with about 92 percent of its 26 potential projects in some stage of implementation. Next are Lambert-St. Louis with 55 percent of its 31 projects and Atlanta-Hartsfield with about 50 percent of its 15 projects under-way. In San Francisco, nearly 44 percent of its design teams' recommendations is in the process of implementation at this writing.

Mr. LEHMAN. Please provide the recommendations made in those task force studies completed during the past year.

[The information follows:]

The following lists provide task force study recommendations for Atlanta, Detroit, San Francisco, and St. Louis Airports:

ATLANTA-HARTSFIELD INTERNATIONAL AIRPORT CAPACITY DESIGN TEAM PROJECT SUMMARY

RECOMMENDED IMPROVEMENT

Airfield Improvements

(1) International concourse

(2) Fifth concourse

(3) Commuter/GA terminal and runway complex south of R/W 9R/27L

(4) Three hold pads/bypass taxiways at end of departure runways

(5) Taxiway C parallel to the west of taxiway D (not pictured)

(6) Angled exits for commuter aircraft; widen fillets at exits to facilitate their use in either direction (not pictured)

Facilities and Equipment

(7) Expedite development and installation of wake vortex forecasting and avoidance systems

(8) Upgrade NAVAIDS and approach lights on R/W 26R and 27L to Category II

(9) Update terminal approach radar

(10) Upgrade RVR system to CAT IIIB and ICAO standards

IMPROVEMENTS

(11) Install ASDE III with tracking

(12) Install touchdown zone lights on R/W 27L

Operational Improvements

(13) Reduce arrival separations to 2.5 nm

(14) Enhance traffic management procedures

User Improvements

(15) Depeak airline schedules within the hour

DETROIT METROPOLITAN WAYNE COUNTY AIRPORT
CAPACITY DESIGN TEAM PROJECT SUMMARY

RECOMMENDED IMPROVEMENT

Airfield Improvements

(1) Holding Apron and Taxiway South
(2) Runway and Taxiway Improvement Package
  (2a) Highspeed Exit Taxiway - Runway 21R to Taxiway Y
  (2b) Extend Taxiway Z to Taxiway V
  (2c) Construct and Expand Holding Aprons at Runways 3C, 3L, and 3R
  (2d) Extend Inner Taxiway Parallel to Taxiway H
  (2e) Construct Exit Taxiway - Runway 9/27 to Taxiway H
  (2f) Construct Taxiway S to East GA Area
(3a) Terminal Expansion
(3b) Mid-Field Terminal
(4) Construct Independent Crosswind Runway - 9R/27L
(5) Construct Independent 4th N/S Runway

Facility and Equipment

(7a) ILS MLS and Approach Lights on Existing Runway 3C
(7b) RVR for Existing Runway 3C
(8) ASDE
(9) Terminal Doppler Weather Radar
(11) RVR and Centerline Lights on Runway 27
(12) Expedite Development and Installation of Wake Vortex Forecasting and Avoidance System
(13) Install an Airport VOR

Air Traffic Control Improvements

(14) Independent Converging VFR/IFR Approaches to Runways 27 and 21R, Hold Short of 21R
(15) Add Controller Positions Establish STAR Routes, Relocate MOTER Intersection
(16) Use Departure Corridors
(17) Realign Cleveland Center Sector Airspace
(18) Expand Tower En Route Program
(19) Reduce Arrival Longitudinal Separation to 2.5NM
  (19a) Runway Occupancy Time Reduced 10%
  (19b) Runway Occupancy Time Reduced 20%
  (19c) Runway Occupancy Time Reduced 30%

User Improvements

(20) Relocate General Aviation Traffic Users
(21) More Uniform Distribution of Scheduled Operations Within the Hour

SAN FRANCISCO INTERNATIONAL AIRPORT CAPACITY DESIGN TEAM PROJECT SUMMARY

RECOMMENDED IMPROVEMENT

Airfield Improvements

(1) Create Holding Areas Near Runway 10L/R, 1R and 28R

(2) Improve Noise Barrier for Runway 1R

(3) Extend Runway 19L/R

(4) Extend Runway 28L/R

(5) Construct Independent Parallel Runway 28

(6) Extend Taxiway C to Threshold Runway 10L

(7) Create High Speed Exit From Runway 10L Between Taxiways L and P

(8) Extend Taxiway T to Taxiway or A

Air Traffic Control Improvements

(9) Expand Visual Approach Procedures

(10) Offset Instrument Approach to Runway 28R

(11) Use Staggered 1-Mile Divergent IFR Departures on Runway 10L/R

Facilities and Equipment

(12) Install Microwave Landing System (MLS) on Runway 28 and 19

User Improvements

(13) Taxi Aircraft Across Active Instead of Towing

(14) Distribute Airline Traffic More Evenly Among Three Airports

(15) Distribute Traffic Uniformly Within the Hour

(16) Divert 50% General Aviation to Reliever Airports

LAMBERT-ST. LOUIS INTERNATIONAL AIRPORT CAPACITY DESIGN TEAM PROJECT SUMMARY

RECOMMENDED IMPROVEMENT

Airfield Improvements

(1) New Runway Parallel to Runway 12L/30R
    (1A) Alternate 1: New Independent Commuter Runway 2500' from Runway 12L/30R
    (1B) Alternate 2: New Dependent Commuter Runway 1400' from Runway 12L/30R
    (1C) Alternate 3: New Independent Air Carrier Runway Parallel to Runway 12L/30R
(2) Convert Taxiway F to Permanent VFR Runway 13/31
(3) Angled Exits on Runway 12L/30R (Not Pictured)
(4) Taxiway Extensions
    (4A) Extend Taxiway A-South to End of Runway 30L
    (4B) Extend Taxiway P from Taxiway C to Taxiway M (Not Pictured)
    (4C) Extend Taxiway C from Taxiway F to Runway End 24
(5) Realign Taxiway B off A to Runway 12R/30L (Not Pictured)
(6) Establish Queuing Areas to Various Runway Ends (Not Pictured)
(7) Relocate Cargo Area (Not Pictured)
(8) Relocate Mid Coast Aviation to Northeast (Not Pictured)

Facilities and Equipment

(9) Install Marker Lights and Parking Lanes in Center Field Remote Holding Area (Not Pictured)
(10) Wake Vortex System
(11) Install Cat III ILS to Reduce Approach Minima on Runways 12L and 12R
(12) IFR Approaches with Additional Instrumentation on Runway 6
(13) IFR Approaches with Additional Instrumentation (RAIL) on Runway 24
(14) LDA Approaches Support
    (14A) Equipment Installation on Runway 30L
    (14B) Equipment Installation on Runway 12L
(15) Install Light Systems at Taxiway and Runway Intersection
(16) Install ASDE

Operational Improvements

(17) Reduce IFR Parallel Approach Stagger to 2NM
(18) Reduce IFR Initial Separations to 2.5NM
(19) Converging IFR Approaches to
    (19A) Runway 6 and 30R
    (19B) Runway 6 and 30L
(20) Converging IFR Approaches to
    (20A) Runways 24 and 30R
    (20B) Runways 24 and 30L
(21) Simultaneous Approaches to ILS 30R, LDA 30L, and ILS 24

User Improvements

(22) Change Fleet Mix
    (22A) Relocate GA 25%
    (22B) Relocate GA 50%
    (22C) Relocate GA 75%
(23) Distribute Scheduled Commercial Operations Within the Hour
(24) Relocate Air National Guard

AIRPORT CAPACITY NEEDS

Mr. LEHMAN. On page 35, you indicate that you have completed your analysis of the impact of airline hubbing and proposed new airports.

What changes have been made or what improvements have resulted from these studies?

Mr. POZESKY. We have indicated we have performed an analysis of hubbing in Philadelphia International. It revealed that with an increase of 200 operations per day, we will undergo a significant increase in local delay, but the systemwide delay would be tolerable.

We have done these kinds of studies and given the results to the local authorities at Philadelphia.

SATELLITE APPLICATIONS

Mr. LEHMAN. You are requesting $946,000 to develop airspace system models to analyze the system impact of new equipment, procedural changes and airspace configurations.

Which specific types of equipment, procedural changes or configurations do you intend to analyze this year?

[The information follows:]

This request is for funds to develop an interactive tool to aid airspace planners and designers in evaluating proposed changes in airspace configurations. This initial model will be used by the FAA Air Traffic Service to redesign sector airspace to reduce controller workload and to more evenly balance workload between sectors. A first application of this will be the proposed redesign of sector airspace in the Chicago ARTCC environment.

Mr. LEHMAN. On page 37 you are requesting $3,164,000 for satellite applications and you state that satellite-based capabilities may eliminate the need for substantial portions of the existing en route airway facilities infrastructure. Which systems do you expect we will be able to replace with satellite-based systems and what is the timeframe for these replacements?

Mr. POZESKY. It is a long-term time frame.

We have got several budget items in this year's budget for F&E and R&D.

We are looking at satellite augmentation and telecommunications in the F&E sense and we are beginning the use of GPS in a navigation sense.

We are hopeful ultimately that we can use GPS as a sole means of navigation.

That is not within the current technically demonstrated capabilities.

It requires some development if we ever get there and we can get all the users equipped.

We see that we can eliminate some air ground and communication outlets, some air ground navigation capabilities, and we will be using satellites for oceanic surveillance as well.

Mr. LEHMAN. Are you talking in terms of 10 to 15 years?

Mr. POZESKY. At least 15 years, because it requires all the users be equipped and even if we can get the technology-equipping, general aviation takes and air carrier users take a long, long time.

Mr. LEHMAN. It is going to be expensive and the Federal Government is probably going to have to bear the cost of operating both systems during a 10- or 15-year transition while we phase one system out just like the transition problem we are facing with MLS and ILS.

Maybe neither one of us will have to deal with that.

Mr. **Pozesky**. I know I won't, sir.

AUTOMATIC DEPENDENT SURVEILLANCE RESEARCH

Mr. **Lehman**. You are requesting $5,198,000 for automatic dependent surveillance research.

Is this going to be a satellite-based system?

[The information follows:]

Yes, the Automatic Dependent Surveillance (ADS) system is based on an existing commercial satellite system for communication of position data.

CAPACITY LIMITATIONS FOR OCEANIC OPERATIONS

Mr. **Lehman**. You refer to capacity limitations for oceanic operations.

Is this a current problem or a potential future problem?

[The information follows:]

Capacity is currently a problem in some oceanic airspace. Delays currently exist in the Western Atlantic between New York and San Juan, Puerto Rico.

Today in the North Atlantic, aircraft suffer economically because they cannot always get the most efficient trajectory and altitude because of congestion, and there is a potential for delays in the future.

There is a potential problem in additional areas as traffic builds. The yearly percentage of traffic growth in some oceanic areas has exceeded 10 percent per year. The Pacific is one of these problem areas.

FAA/NASA COOPERATIVE RESEARCH PROJECTS

Mr. **Lehman**. On page 39, you refer to a number of cooperative research projects that you are conducting with NASA. What are you and NASA doing in the area of human factors research?

Mr. **Pozesky**. Human factors research has been a major thrust to us.

I would like to introduce you to Dr. Clay Foushee, who is our resource specialist, a well-known expert on human factors.

With NASA, we are developing fatigue and disruptive duty cycle measurements and assessing their effect on crew performance, measuring the planned rest period, the effect of planned rest periods, what I call controlled napping on crew alertness, developing training methods and precision aids for pilot workloads and analyzing the effect of human errors and incidents.

As an inherent part of all our programs such as AAS and others, we are doing a great deal of human factors work.

In developing common consoles and other controller aids, human factors is built right into those programs and is not always visible as a separate line item.

So I don't want you to think that this is the only human factors work we are doing.

There is human factors buried in part of virtually all of our F&E programs in the FAA.

Mr. **Lehman**. What is the line item for good morale?

Mr. **Pozesky**. It is not in this budget as such.

JOINT UNIVERSITY AIR TRANSPORTATION TECHNOLOGY PROGRAM

Mr. **LEHMAN**. On pages 39 and 40, would you indicate for the record some of the research projects that are scheduled to be completed during the current calendar year under your joint university air transportation technology program and by the Transportation Research Board?

[The information follows:]

A cockpit simulator is being constructed to assist in the development of advanced windshear warning and new display techniques. Numerous commercially available and experimental automated speech recognition systems were studied and tested for use in Air Traffic Control Situations. Recommendations were made for incorporation into the National Airspace System. The current phase of these programs will be completed by the end of this year.

An artificial intelligence "expert" system, Tower Chief, which serves as a tower controller's intelligent assistant was written, debugged and tested. Many new logical processes were devised, which advanced the state of the art in expert systems theory. The current phase of these programs will be completed by the end of this year.

Aircraft Icing Models do not currently account for the effect of aerodynamic surface roughness on ice build up. This project seeks to study this effect and incorporate this parameter into icing models which will be developed under this project.

We are looking at improving the effectiveness of receiver autonomous integrity using a ridge regression technique. Current Global Positioning System (GPS) and other Avionics Systems rely on the Kalman Filter and its variants to estimate aircraft position, velocity, and acceleration. A new technique, ridge regression, with potential for improvements on the Kalman Filter, will be investigated in 1990.

Transportation Research Board—Five Graduate Research Papers—1990:

"United States Cabotage Policy; An Assessment of Alternatives In Light of the Liberalization of the European Aviation Market".

"Human Factors in Airport Passenger Terminals: A Methodology for Design and Evaluation".

"Understanding the Role of Human Error in Aircraft Accidents".

"Price and Scheduling Competition Among Hub Airlines".

"An Analysis of the Relationship Between the Financial and Mechanical Health of the Aviation Industry".

TRB/FAA—Four Aviation Experts Workshops—TRB Research Circulars to be published:

"General Aviation Outlook and Forecasting Methodology".

"Commuter Airline Outlook".

"Air Carrier Methodology Workshop".

"Internationalization of the Aviation Industry".

R,E&D ADVISORY COMMITTEE

Mr. **LEHMAN**. Who are the members of the R,E&D Advisory Committee for which you are requesting $180,000?

[The information follows:]

The following is a list of the R,E&D Advisory Committee members:

Mr. Robert E. Everett (Chairman), MITRE.
Mr. Norman R. Augustine, Martin Marietta.
Dr. Thomas E. Cooper, General Electric Company.
Hon. J. Lynn Helms, Consul Int, Ltd.
Mr. Jonathon Howe, NBAA.
Mr. John E. O'Brien, ALPA.
Dr. Wesley Posvar, University of Pittsburgh.
Mr. J. Donald Reilly, (former AOCI).
Mr. Edward W. Stimpson, GAMA.
Mr. Robert J. Aaronson, ATA.
Mr. Robert W. Baker, American Airlines.
Mr. Benjamin A. Cosgrove, Boeing Commercial Airplanes.
Mr. Leonard M. Horner, Bell Helicopter Co.
Dr. John McCarthy, NCAR.
Mr. Siegbert B. Poritzky, AOCI.

Dr. Garrison Rapmund, M.D., Consultant.
Dr. Robert Rosen, NASA.
Mr. Raymond Valeika, Continental Airlines.
Recent Resignations:
Mr. John Baker, AOPA.
MGen Thomas Ferguson, HQ USAF.

SMALL BUSINESS INNOVATIVE RESEARCH PROGRAM

Mr. **LEHMAN**. On page 41, what have been the most significant accomplishments to date from your small business innovative research program?

[The information follows:]

The FAA's SBIR Program efforts have led to meaningful research results focusing on important aviation problems. The following projects stand out as being among significant program accomplishments to date: (1) An electronically powered accelerator based source of pulsed neutrons for use in baggage explosives detection was developed by Accsys Technology, Inc. This equipment was cited by the IEEE Spectrum as having the highest potential of all explosives detection equipment in the war on terrorism; (2) PC-Based Computer Software was developed which enables air traffic control system designers to determine the effect which new ATC systems will have on controller performance. This series of programs, known as "PATCAM", was developed by CTA Corporation; and (3) A lightweight surround structure, capable of containing high energy fragments from a disintegrating turbine engine, was designed, developed, and tested. This containment structure, utilizing advanced polymer and ceramic composites, resulted from a Phase I task undertaken by Pepin Associated, Inc. Negotiations are underway with engine manufacturers to commericalize this product.

Other significant accomplishments included: (1) A unique electro-mechanical apparatus for measuring the propensity of airport surface pavements to deteriorate with time and stress was developed, built, and tested. This axial and diametral stress tester was built by Kelly Strazer, Inc., and has entered commerical production; and (2) A package of nearly 60 aircraft wake vortex analysis and simulation programs was written for use on the Digital Equipment VAX line of computers. Developed by Continuum Dynamics, Inc., this software is in continuous use by FAA personnel concerned with safe terminal area metering and routing of aircraft.

TECHNOLOGY TRANSFER PROGRAM

Mr. **LEHMAN**. You are requesting $960,000 to start a technology transfer program, which you indicate was authorized in 1980.

After 10 years, why do you now feel it is essential to start this program?

Mr. **POZESKY**. We began our initial efforts in 1987, as you know. It just took us a long time to have the clarifying guidance in place to implement this program.

Mr. **LEHMAN**. How much financial support will you get for this program from State and local Governments, universities, and businesses?

Mr. **POZESKY**. There is no direct funding support from State or local Governments, universities or businesses.

We do get participation from the universities in making their people available to participate in these projects.

GRADUATE-LEVEL RESEARCH & EDUCATION IN AVIATION TECHNOLOGY (GREAT) PROGRAM

Mr. **LEHMAN**. You are requesting $1.2 million to start a new program of graduate-level research and education in aviation.

Is it intended for these funds to be provided only to Rutgers University or will other schools also be eligible?

If only Rutgers, how were they selected?

Mr. POZESKY. Rutgers is the only university involved at this time. They were competitively selected.

ROTOR CRAFT RESEARCH

Mr. LEHMAN. You are requesting $4,018,000 for rotor craft research.

What new or modified procedures or operational standards have you promulgated during the past year as a result of your rotor craft research?

Mr. POZESKY. Several items, Mr. Chairman, aeronautical decision-making training manuals, heliport design standards, vertiport design standards, VFR and special visual procedures, and terminal helicopter instrument approaches for MLS are being finalized.

CIVIL TILT ROTOR AIRCRAFT PROGRAM

Mr. LEHMAN. It is my understanding that DOD has deleted funding for the Boeing/Vertol V-22 Osprey which was anticipated to provide the basis for a civil commercial version.

Why are you continuing your tilt-rotor research when there is doubt as to the commercial availability of tilt-rotor technology?

[The information follows:]

Most current work will support conventional rotorcraft as well as tiltrotors, and is thus necessary whether a commercial version of the V-22 Osprey is fielded or not. The Japanese Ishida Corporation-funded tiltwing, which is scheduled for production in Texas around 1993, has similar operational characteristics to tiltrotor and current tiltrotor research will also apply to tiltwing.

Mr. LEHMAN. What are you doing to make tilt-rotor commercially viable, in view of the DOD decision to cancel the V-22 program?

[The information follows:]

The FAA, along with NASA, is conducting a follow-on study of civil tiltrotor economics, missions, and applications; beginning independent economic analysis; and continuing AIP study grants for planning to determine civil tiltrotor cargo and passenger operational and economic feasibility. Per an existing Memorandum of Agreement, the FAA is coordinating with DOD to capture available aircraft development data necessary in civil certification process. Also, the FAA is planning for an infrastructure that will accommodate tiltrotors, so operators will be able to utilize tiltrotor's unique operating characteristics if it proves economically viable and becomes commercially available.

HUMAN SYSTEMS AND OPERATIONS RESEARCH

Mr. LEHMAN. Under human systems research, what have you learned to date in your effort to "seek root causes of flight crew error?"

[The information follows:]

Approximately 71 percent of all fatal civilian and military accidents have one or more human error causal factors. We have reviewed 34 databases of accident/incident information. While some preliminary findings have been made, there are significant incompatibilities in content, format, and categorization schemes of the data bases. Before substantial conclusions can be drawn, a significant effort must be undertaken to normalize that data. That normalization is currently part of our program and should provide reliable findings in about one year.

FLIGHT CREW RULEMAKING

Mr. **LEHMAN**. You are requesting $2,522,000 for flight crew certification and training.

Is this research directed toward any specific flight crew rulemakings?

If so, what is the status of each of them?

Mr. **POZESKY**. Yes, a special Federal Aviation Regulation will be scheduled in July 1990 to permit the airlines to develop their own training programs.

CREW COMPLEMENT DETERMINATION

Mr. **LEHMAN**. Would you provide for the record the status of your upgrading of the advisory circular on crew complement determination for FAR Part 25 aircraft?

[The information follows:]

A notice of availability for public comment regarding draft Advisory Circular (AC) No. 25.1523-xx, Minimum Flightcrew, was published in the *Federal Register* on May 12, 1986. The draft AC was extensively rewritten following review of public comments received. Publication of the revised AC for public comment is scheduled for early 1991.

FLIGHT CREW AUTOMATION

Mr. **LEHMAN**. On pages 52 and 53, what flight crew functions are being automated by aircraft manufacturers and what has caused you to question the philosophy of reducing human error by automation?

Mr. **POZESKY**. System control, operation flight guidance control, and thrust management are highly automated in many aircraft today and the NASA studies documented in several recent NASA reports have shown clearly that automation can increase error potential in some instances.

It decreases some errors and creates opportunities for much larger errors and that has been the focus of our human factors work in automation.

Mr. **LEHMAN**. An 88 percent increase—that is a big increase.

Mr. **POZESKY**. It is an 88 percent increase of the dedicated controller human factors, but a large part of human factors has been going on inside all our development programs thus far.

In that area, we have several joint projects with NASA on the enhancement of controller displays with different kinds of sound techniques and CAMI is studying the basic electronic flight progress strip data and how best to assimilate that data.

Mr. **LEHMAN**. How much is this just a consolidation of the previous programs?

Mr. **POZESKY**. Probably about half of it. I can get you a more detailed answer for the record.

[The information follows:]

Our 88 percent increase for controller human factors research is based on new joint projects with NASA on enhancement of controller displays with stereo sound, and CAMI on cognitive processing of electronic flight progress data. Also included is the transition of a Small Business Innovative Research project on controller display structures to develop better means for controller interaction with display devices.

EXPERT SYSTEMS APPLICATION TO ATC

Mr. LEHMAN. On page 54, you talk about artificial intelligence technology.

Mr. POZESKY. We are looking at this kind of technology to help us in training air traffic controllers and in the application of AERA 3. It is the kind of technology that we hope to be able to apply to maintenance activities and ATC in the future.

FLIGHT PLANNING OPTIMIZATION

Mr. LEHMAN. You are requesting $1,096,000 for flight planning optimization, an increase of $981,000 over fiscal year 1990. What percentage reductions in controller workload do you expect to achieve from this research?

Mr. POZESKY. Well, we don't see—we see mostly a reduction in reduced flight time and fuel burning savings. Fuel savings in the order of 5 percent are predicted. Controller workload is much more hard, much harder to gauge, and we really would be guessing to give you an answer. We see it in the range of perhaps 5 to 10 percent.

I can provide additional information when the research gives us some results. At the moment, it is only really a guess.

[The information follows:]

Flight planning optimization benefits will accrue in terms of reduced flight time and fuel burn savings. Fuel savings on the order of 5% are predicted. Controller workload, in some instances, may also be reduced, but we have not attempted to quantify this until we have had an opportunity to conduct prototype field tests.

ADVANCED AUTOMATION PROGRAM

Mr. LEHMAN. We have already discussed your advanced automation program. Would you indicate for the record how many personnel your $4,963,000 request for in-house costs supports?

[The information follows:]

Our $4,963,000 request for in-house costs supports 56 personnel.

ADVANCED TRAFFIC MANAGEMENT SYSTEM

Mr. LEHMAN. On pages 59 and 60 you are requesting $14,178,000 for ATC automation. This request includes $5,065,000 for your advanced traffic management system. As we have discussed in past years, this is one of your major efforts.

Have you established any specific objectives for this system in terms of reduced delays?

Mr. POZESKY. Yes, Mr. Chairman. This area, the traffic management system for automation is an advanced traffic management system, is a strongly emerging area for us.

During fiscal year 1991, we will be using the test and refinement of these algorithms for demand loading prediction which will be completed. These will provide the capacity for specific systems projections in terms of delays across the country.

I might also add that we have implemented the airport, aircraft situation display in 15 or 16 of our 20 centers this year, and we will see major new efforts in the FAA's program in 1992 and beyond in this area.

AERA RESEARCH

Mr. LEHMAN. You are requesting $8,582,000 for automated enroute air traffic control (AERA) research. Would you update for the record the information on AERA that was included on page 920 of last year's hearing record, including a brief description of the functional and performance requirements to be accomplished under AERA 1, 2 and 3?

[The information follows:]

UPDATE FOR 91 HEARINGS

AERA 1		($22,819)
AERA 1 concept defined	1980	371
Demonstration testbed capability	1981	2,960
Top level spec provided to Advanced Automation Program	1982	1,200
Inputs to AAS spec	1983	1,000
Program plan and transition strategy	1983	3,500
Initiate FAATC testbed development	1983	1,100
Final spec to Advanced Automation Program	1984	6,213
FAATC testbed development	1984–85	(3,317)
Operational software development	1986–87	6,475
First site operational	1997	
Last site operational	1999	
AERA 2		($174,905)
Operational description	1985	3,476
Draft functional specification	1985	3,476
Final functional specification	1986	3,338
Operational concept	1986	752
Laboratory and software development	1987–99	163,863
First site operational	1999	
Last site operational	2001	
AERA 3		($76,165)
Operational analysis and functional concepts	1986–87	2,275
Establish protocenter and draft functional specifications	1988–89	10,432
Software development, algorithm refinement, functional and performance specification, and establish operational testbed	1990–95	47,100
Functional performance specification to AAP	1995	
Final production specification	1995–98	16,358
First site testing	2000+	

The automated En Route Air Traffic Control (AERA) project will enable user-preferred flight paths while increasing controller productivity by providing automation capabilities in planning and monitoring the four-dimensional flow of air traffic. AERA 1, which is an integral part of the Advanced Automation System (AAS), includes basic trajectory calculation improvements and probes for predicting potential violations of separation standards, protected airspace and flow restriction.

AERA 2, which will be the first major enhancement to the AAS functionality, expands on AERA 1 and provides automated coordination and recommended problem resolutions to the controllers. It also introduces the concept of computer-generated, controller-approved clearances for transmission to the aircraft via data link.

AERA 3 represents a major step in the continuing evolution and application of automation technology to controller functionality and the National Airspace System. It significantly changes the role of the human (vice controller) in separation assurance (aircraft to aircraft and aircraft to airspace). The automation will now perform this function and the human will become a manager of airspace and traffic flows or "Airspace Manager (AM)." This will provide the user with greater freedom and flexibility and minimize artificial system constraints focused around controller workload and cognitive ability. This is contrasted to AERA 1 and 2 which provide automation aids that help the controller perform air traffic control tasks. AERA, with AAS, provides improved user benefits, fuel savings, and improved controller/machine interface, the ability to handle increased quantities of traffic, safety improvements, and operations and maintenance improvements.

AERA 3 RESEARCH

Mr. LEHMAN. With regard to your AERA 3 research, last year it was indicated that you intended to have specifications for the prototype laboratory system in September 1989, a system level specification in September 1990 and draft production specifications in the 1992–93 timeframe.

Is this effort on schedule? What is the status of your system level specification?

Mr. POZESKY. It is on schedule, but again we have a semantics problem. We believe that we will have the draft AERA 3 functional specification in the 1992 and 1993 timeframe. We need to convert that to a production specification later on. So we are on target.

We are where we said last year. We may have misspoke, but our program is directed at a functional specification in this timeframe for AERA 3.

SPECIAL-USE AIRSPACE RESEARCH

Mr. LEHMAN. On page 60, why do you need $531,000 for research on special-use airspace? Doesn't DOD make the decision on what its special-use airspace requirements are?

[The information follows:]

DOD has the lead in developing a military airspace management system; however, a GAO study states that the FAA must take a more dynamic role in the management of special use airspace. The money requested, $531,000, is for the development of software programs to enable the FAA to do that.

NAVIGATION SYSTEMS RESEARCH

Mr. LEHMAN. Mr. Coughlin.

Mr. COUGHLIN. You are requesting $3,359,000 for navigation systems research. As we have discussed in the past there have been reports that indicate there are substantial overlap, unnecessary redundancy and extra costs associated with the government's navigation systems.

It is my understanding that DOD intends to phase out military use of VOR/DME, OMEGA, and LORAN-C, but DOT has not made a decision on any of these systems.

Are you considering any reductions in navigation systems? If so, which ones and how many more years will it be before you reach a decision?

Mr. POZESKY. We do not have the necessary capability to reduce these systems yet. The users are demanding this kind of service and there is a mix. When and if DOD phases out TACAN we hopefully can eliminate that kind of capability from our inventory. We do see making use of the GPS system which DOD is sponsoring in the future.

We do publish every year a Federal radionavigation system plan. We will be publishing that again which outlines this system mix.

GPS USE

Mr. COUGHLIN. Two years ago (fiscal year 1989, page 704), you stated that: "Implementation of a 24-satellite configuration would permit use of GPS as a sole-means system."

Last year we were told that a 24-satellite constellation would be in place by 1995. How feasible is it to have GPS as a sole-means system in 1995?

[The information follows:]

The proposed 24 satellite constellation provides 24 satellites about 70 percent of the time and only 21 satellites 98 percent of the time. While this 21 satellite configuration will provide navigation coverage for accuracy, it does not satisfy all navigation requirements (e.g., integrity).

The FAA in response to the Congress is developing regulations to define what the requirements are for a system to be the only radionavigation system on board an aircraft for instrument flight rules flight.

Only in 1995 will the FAA have the opportunity to gain experience on the full GPS operation.

Using the regulatory requirement for "sole-means" radionavigation system and the experience gained using the full operational GPS, the FAA will make a decision on whether GPS alone or augmented can be a "sole-means" civil aviation radionavigation system.

FEDERAL RADIONAVIGATION PLAN

Mr. COUGHLIN. What is the status of the 1990 edition of the Federal radionavigation plan?

Mr. POZESKY. It will be submitted for the Secretary for approval this summer and hopefully published in November of this year.

AVIATION WEATHER RESEARCH

Mr. COUGHLIN. On pages 64 through 67 you are requesting $7,739,000 for aviation weather research. What is the most significant improvement you have made during the past year in the acquisition, processing and dissemination of aviation weather information?

Mr. POZESKY. Several things we would like to point out. The development of Doppler weather detection algorithm for windshear detection. We would like to point out the effort and progress made in the development of sensors for AWOS, automatic detection of thunderstorms, temperature dew point, and the use of automated censors. We need to also point out the data link work in which we are spending research and development and now need to make this information available to pilots through data link.

CENTRAL WEATHER PROCESSOR

Mr. COUGHLIN. You are requesting $1,653,000 for your central weather processor program. As we have discussed in past years, this program is years behind schedule.

Last year it was indicated that you had broken this program into two procurements, with the first to be implemented in the centers starting in September 1990 and the second to produce prototype equipment in May 1991.

What is the status of each of these?

Mr. POZESKY. It looks like we made the right decision to split the program. The Meteorologist Weather Processor Program is under contract to Harris Systems in Florida, and first delivery is scheduled for September of this year. So that will be the first major product only a couple of months away.

Real-time weather processor is scheduled for formal acceptance testing at the Jet Propulsion Laboratory in May of 1990 and the prototype equipment shipped to the Technical Center a year later.

Mr. COUGHLIN. Last year it was indicated that the total estimated cost for this project had increased to $183.6 million. What is your current total cost estimate?

[The information follows:]

The total estimated cost of the Central Weather Processor program is approximately $180.5 million. This includes both the Meteorologist Weather Processor and Real-Time Weather Processor systems.

ICING FORECASTING RESEARCH

Mr. COUGHLIN. How much are NOAA, NASA, DOD and NSF contributing to the icing forecasting research effort and what are the projected out-year costs for each agency as well as the schedule for implementing and completing each of the three phases of this program?

[The information follows:]

[Dollars in thousands]

	Phase 1 FY 1991	Phase 2 FY 1993	Phase 3 FY 1995
Agency:			
NOAA	$300	$300	$150
DOD	25	0	0
NSF	200	200	100
Total	525	500	250

WINDSHEAR SENSORS

Mr. COUGHLIN. You are requesting $1,041,000 for the development of airborne windshear sensors. According to the budget, no further funding will be proposed for this program.

What are you planning to do to implement the results of this research?

Mr. POZESKY. We will implement the research in the ground sensor as part of our ground development system. Flight demonstration will be conducted in fiscal year 1991 through 1993, and these kinds of sensors will be the subject of rulemaking if successful. So we will get them implemented in the aircraft cockpit.

LOW-LEVEL WINDSHEAR ALERT SYSTEM

Mr. COUGHLIN. How will this system affect the requirements for low level windshear alert systems and terminal Dopplers?

Mr. POZESKY. We don't believe they will affect it. Our feeling is that this total solution for the phenomena will require a mix of technologies, airborne as well as ground, and we don't see a single system solving the total problem.

Mr. COUGHLIN. You are requesting $500,000 for an expanded LLWAS (low level windshear alert system). What plans do you have to implement this system and how is it related to your other windshear systems?

[The information follows:]

The $500,000 requested is to complete R,E&D efforts in three specific areas: (1) Work will be completed on techniques to mitigate false alarms caused by thermal activity. This will result in algorithm changes to be applied to operational systems; (2) Testing of the integration of LLWAS and TDWR will be conducted. Data from this testing will be used to develop the interface design to be used in the acquisition of this capability for operational systems; (3) Work will be completed on the development of requirements and preparation of a specification for a more reliable wind sensor that will also operate in icing conditions.

The three elements of this R,E&D effort will be applied during acquisition of the Network Expansion LLWAS which will be integrated with TDWR at those airports where the two systems are colocated.

We plan to submit a request for LLWAS in the FY 1992 facilities and equipment budget.

Mr. COUGHLIN. You are requesting $641,000 for fiscal year 1991 and will be requesting over $6 million in the following four years to develop flight crews' windshear information system requirements.

Shouldn't this have been done before your airborne windshear sensor development program?

Mr. POZESKY. It is not possible to do it before. Both efforts must go in parallel.

The information to be presented to the crew is driven by the way the technology allows it to be presented and vice versa. So we don't see it as a waste. We think we have to mature both approaches at the same time.

TERMINAL WEATHER RADAR RESEARCH

Mr. COUGHLIN. You are requesting $2,022,000 for terminal weather radar research. Since we have already provided procurement funding for the terminal Doppler program, would you explain how the results of your research will be coordinated with the radar procurements?

Mr. POZESKY. Yes, sir. The research directed at software products computer programs which can be added to the hardware later. We see a continuing need to develop additional products, additional weather products over the years.

The 1991 work will focus on a turbulence detection algorithm which hopefully can be added to the algorithms operating in TDWR.

AIRBORNE WINDSHEAR ADVANCED TECHNOLOGY

Mr. COUGHLIN. On page 67, shouldn't you complete your flight crew windshear information system requirements work before you get into developing advanced airborne windshear technology?

[The information follows:]

The two efforts must be accomplished together. In order to be sure the system provides the pilot with timely data and commands, the design of the displays and sensor technology must both consider the interface with the other.

Mr. COUGHLIN. You are requesting $6,473,000 for aviation medicine research. What was your most significant accomplishment in this area during the past year?

[The information follows:]

Development of research-based guidelines for use of infant-child flotation devices following both ditchings and unplanned in-water aircraft. The data acquisition phase of this study is complete. A report providing these research-based guidelines will be issued during FY 1990.

ALCOHOL-RELATED ACCIDENTS

Mr. COUGHLIN. Would you update for the record the information on alcohol-related accidents which was included on page 925 of last year's hearing?

[The information follows:]

The table below is submitted for your record. The FAA will continue its ongoing airman education effort in the area of the effects of alcohol on pilot performance.

ALCOHOL FINDING IN PILOTS: 5,033 FATAL GENERAL AVIATION ACCIDENTS

[Calendar years 1977–89]

	Alcohol		
	Cases	Above .04 percent	Percent
Year:			
1977	394	34	8.6
1978	410	34	8.3
1979	388	22	5.7
1980	384	25	6.5
1981	431	28	6.5
1982	389	27	6.9
1983	412	29	7.0
1984	399	19	4.8
1985	412	20	4.9
1986	380	16	4.2
1987	344	19	5.5
1988	358	23	6.4
1989	332	27	6.4
Total	5,033	323	6.4

Note: Alcohol from fermentation has been ruled out in the above cases.

PASSENGER SMOKEHOODS/EVACUATION

Mr. COUGHLIN. Last year it was indicated that you were reviewing the results of a study of the effects of passenger smokehoods on evacuation rates. What did you conclude and what actions are you taking as a result of this research?

Mr. POZESKY. Well, we found that the fire-blocking layers are more effective than smokehoods in eliminating toxic fumes and in providing safety to the effected individuals. The detailed results of the smokehood testing are now being evaluated and we really have not made a final decision in that area.

There will be a decision hopefully forthcoming in the next couple of months.

AVIATION MEDICINE RESEARCH REGULATIONS

Mr. COUGHLIN. Have you issued any regulations during the past year as a result of your aviation medicine research?

Mr. POZESKY. Yes, sir. I will state two. Amendment No. 121–204, dated May 17, 1989, requiring the placement of crew portable protective equipment for part 121 carriers and amendments 121–124 and 135–136 issued March 1990, rule on exit row seating. CAMI research was very influential in the development of this rule.

WORK FORCE OPTIMIZATION RESEARCH

Mr. COUGHLIN. You are requesting $2,114,000 for work force optimization research. With regard to air traffic controller screening and training, what new tests or modifications to existing tests have you developed during the past year?

[The information follows:]

Two new tests are being assessed for use in academy screening and evaluating controller field performance. Evaluation of these tests for inclusion into the OPM selection process has begun.

New laboratory problems and academic tests for the current ATCS screen were extensively tested and implemented at the Academy.

HUMAN PERFORMANCE RESEARCH

Mr. COUGHLIN. Would you update for the record the information on human performance research that was provided on pages 926 and 927 of last year's hearing record, including an identification of the potential rulemaking the research is designed to support?

[The information follows:]

We are continuing research in the three subprogram areas mentioned last year, as follows:

Systems Research: Control and Display Requirements—Advanced Automation/Simulators and their Application—$261,600. There is a rapidly developing technology in electronic color displays with color coding information. A variety of new displays are available that permit more effective integration and utilization of multiple information sources than was previously possible. We will conduct research in this area to determine design features that will optimize human performance. We plan to initially study coding dimensions such as chromaticity, symbol shape and luminance. We will also look at aircraft accidents from the human performance perspective by comparing characteristics of accident-involved pilots with accident-free pilots.

Operational Error: Air Traffic Controller, Aircrew Sensation, Perception, Judgment—$358,000. We are continuing our study of the role of decision making in pilot and controller tasks. Development of a prototype training block on decision making for controller tasks. Development of a prototype training block on decision making for controllers is underway, and we plan to refine our understanding of pilot judgment. The study of controller memory and scanning performance will also continue. A new study on information transfer in ATC displays will evaluate the extent to which three-dimensional radar display formats may be superior to conventional two-dimensional formats.

Stresses Within Man, The System and Job Environment, Fatigue, Shiftwork, Radiation, Oxygen Deprivation, Occupational Health—$91,900. A new study of effects of fatigue on performance in a simulated automated task environment will be initiated. This work will examine the interaction of rotating work shift patterns and sleep deprivation with complex human performance. We will initiate laboratory research on effects of microwave and X-ray radiation on injury recovery processes.

Research was completed on evaluating the relation of type and degree of color vision deficiency and aeromedical color vision screening test scores to performance of color-dependent tasks of Air Traffic Control Specialists. The purpose was to evaluate the normal color vision requirements for ATC personnel. Recommendations were made to assure appropriate color vision screening.

AGING AIRCRAFT—HUMAN FACTORS

Mr. COUGHLIN. On page 71, have you determined the critical error-prone tasks involved in maintaining aging aircraft? If so, what are they?

[The information follows:]

The majority of the typical errors that occur in maintaining aging aircraft involve repetitive inspection of rows of rivets, usually thousands per row, and interpretation of the electronic output signals. Other areas involve the interpretation of ultrasound signals in determining the condition of fuselage bonded lap joints. Many of the errors are introduced because of unsatisfactory lighting of the inspection areas and inaccessability of the inspection area.

AIRCRAFT SAFETY RESEARCH

Mr. COUGHLIN. You are requesting $47,142,000 for aircraft safety. Why do you believe you need a 34 percent increase in this activity?

Mr. POZESKY. It is directed primarily at the security and aging aircraft, the deployment and evaluation of vapor detection systems, the R&D explosive laboratory, and the continuation of the BWI demonstration project beginning this year, and in aging aircraft, an increase in the scope of the nondestructive testing equipment. Both of these areas are growing needs in aviation for research and development. We see that continuing for the future.

FIRE SAFETY RESEARCH

Mr. COUGHLIN. On page 72 you are requesting $5,001,000 for fire safety research. What are the status and schedule for completion of your regulatory effort involving class B cargo compartments?

Mr. POZESKY. We have had some products here as well. The airworthiness directive for maindeck class B cargo compartments was issued in August of 1989. It calls for operational equipment changes and design modifications.

We hoped to complete the narrow body fire test in October of this year, wide body tests in April of 1991 and then have a technical report next summer.

Mr. COUGHLIN. Would you indicate for the record the objective, scheduled completion date and estimated cost for each of the nine programs listed on pages 72 and 73 under fire safety?

[The information follows:]

The objective, scheduled completion date and estimated cost for the FY 1991 efforts (as distinct from preceding and later fiscal year efforts) associated with the nine fire safety programs are as follows:

On-board Cabin Water Spray System. The objective is to optimize the design of an on-board water spray system in terms of minimal weight penalty. completion date: 9/91 Cost: $1,070K

Halon Replacement Guidelines: The objective is to evaluate the effectiveness of alternate extinguishing agents to Halon 1211 and Halon 1301 in aircraft hand-held extinguishers, cargo compartment total flooding systems and engine nacelle high rate discharge systems. Completion date: 9/91 Cost: $938K

Auxiliary Fuel Tank Protection: The objective is to test and evaluate promising approaches for reducing or preventing flame and smoke entry through floor vents and to examine the need for improved fire resistence of flooring materials. Completion date: 9/91 Cost: $744K

Cargo Compartment Fire Safety: The objective is to examine the fire hazards associated with cargo luggage fires involving aerosol cans and to assess the overall capabilities of cargo compartment smoke detectors. Completion date: 7/91 Cost: $644K

Seat Component Fireworthiness. The objective is to develop an improved fire test method and criteria for the selection of seat component materials. Completion date: 9/91 Cost: $489K

Oxygen Systems Safety: No activity. Not funded in FY 1991. Fuselage Structural Fire Safety. No activity. Not funded in FY 1991.

Computer-Assisted Emergency Management. The objective is to conduct full-scale fire tests on a prototype Aircraft Command in Emergency Situations (ACES) system to demonstrate its capabilities for enabling the flight crew to respond to an in-flight fire emergency in a more rapid and proper fashion. Completion Date: 5/92 Cost: $744K.

Low Pressure Flammability. The objective is to correlate the burning rate of various cabin materials and typical luggage materials as a function of pressure (altitude). Completion date: 10/91 Cost: $372K

ENGINE INGESTION RESEARCH

Mr. COUGHLIN. You are requesting $2,386,000 for propulsion research. This includes funds to study ingestion effects on new technology engines, such as the unducted fan.

Aren't the engine manufacturers, such as General Electric and Pratt & Whitney, doing adequate research and development in this area?

Mr. POZESKY. Unfortunately, the industry efforts in this area, particularly unducted fan, have diminished. We need to keep that going.

The ingestion research done on conventional systems is applicable to these needs. So we see a cross benefit in these areas.

FUEL EVALUATION

Mr. COUGHLIN. On page 74, what types of fuels are you evaluating to control post-crash fires?

Mr. POZESKY. We are looking at three kinds of ways to contain the fire hazard. One is increasing the viscosity of fuels, making them thicker so they don't burn; inerting fuels such as adding additives to take away the volatility, and inhibiting the formulation of vapors in some kind of a technique so it doesn't catch fire. This is an area of continuing research to us.

Mr. COUGHLIN. Anything different than what you have been doing in the past?

Mr. POZESKY. The updated technology. The same thrust.

Mr. COUGHLIN. For how many years?

Mr. POZESKY. It is a kind of a thing that needs to go on until a solution is defined as the chemistry and technology allows us to come up with fire retardant and fire resistant fuels.

CRASHWORTHINESS RESEARCH

Mr. COUGHLIN. On page 75, what major crashworthiness regulations, advisory circulars, or proposed aircraft design changes have you promulgated during the past year as a result of your crashworthiness research?

[The information follows:]

Revision of Fiber Composite Analysis and Design Textbook, Volume 1—Composite Materials and Laminates. Text used as advisory guide by FAA certification and maintenance personnel.

STATUS OF CERTAIN NPRM'S

Mr. COUGHLIN. Please update for the record the status of the following NPRMs that you referred to last year (page 930): 87-10, 87-4, and your NPRM to require retrofit of improved seats on transport category airplanes.

[The information follows:]

On October 20, 1987, the FAA Published-Notice of Proposed Rulemaking No. 87-10. Final action on that rulemaking was issued on June 16, 1989. The final rule established a new standard that limits the distance between emergency exits on transport category airplanes. The rule prohibits airplane manufacturers and air carriers from increasing the distance between emergency exits to more than 60 feet. Prior regulations did not limit the distance. The final rule became effective on July 24, 1989.

On June 3, 1987, the FAA Published-Notice of Proposed Rulemaking No. 87-4. Final action on that rulemaking was issued on November 13, 1989. The amendments to the airworthiness standards for normal and transport category rotorcraft add two dynamic crash impact design conditions for seat and occupant restraint systems and increase the static design load factors for seating devices and items of mass in the cabin or adjacent to the cabin as prescribed. The amendments also prescribe a shoulder harness for each occupant and adopt human impact injury criteria as a measure for occupant protection for dynamic crash impact conditions. The amendments, consistent with the present state-of-the-art, significantly improve occupant protections for normal and transport category rotorcraft in a survivable emergency landing impact mode. The final rule became effective on December 13, 1989.

On May 17, 1989, the FAA Published Notice of Proposed Rulemaking No. 88-8 that would require all seats of transport category airplanes used in air carrier operations and in scheduled intrastate service to comply with improved crashworthiness standards. The comment period closed on October 14, 1988. A final document is being developed that will address the comments received. The FAA expects to publish that document in the Federal Register in September

AGING AIRCRAFT RESEARCH

Mr. COUGHLIN. You are requesting $5,749,000 for your aging aircraft research. Why do you believe you need more than a 40 percent increase in this area?

[The information follows:]

The technology necessary to provide an adequate level of confidence in the nondestructive inspection of aging aircraft has been greatly underestimated. Solution of the human factors aspects of inspection conduct have also been more complex and difficult to research than first indicated.

Mr. POZESKY. It is an extremely complex problem, particularly one which is very sensitive to the human factor concerns to writing an adequate level of confidence in the non-destructive testing. It is a problem of detecting smaller errors in a very repetitive process, and so it is an area where we think there is a lot of payoff, a lot of concern in the country.

We need to continue to develop better ways of doing non-destructive testing.

Mr. COUGHLIN. What major regulatory actions or procedural changes have you taken as a result of your aging aircraft research?

Mr. POZESKY. We have issued specific mandatory requirements to correct fatigue-related to difficulties in the 727, 737 and 747 aircraft, and proposed similar requirements for Douglas aircraft. We have also initiated a corrosion control program for aircraft, for Boeing as well as Douglas aircraft. This is again an area where we are initiating a series of aging aircraft audits to ensure that the industry responds to the existing and proposed regulations—is sufficient to continue the safety of our fleet.

AIRCRAFT ICING

Mr. COUGHLIN. On page 78, you have been working on aircraft icing for several years. Two years ago—fiscal year 1988, page 824—you indicated that you intended to defer updating FAR 24 Appendix C until the icing program was completed, and that you expected to have the technical recommendations and data package completed in 1989.

Last year, page 931, we were told the data package would be ready for rule-making in June 1991. What is the status of this effort?

Mr. POZESKY. We are still targeting the 1991 date, sir.

AVIATION SECURITY RESEARCH

Mr. COUGHLIN. On pages 79 through 82, we have already discussed your aviation security research to some extent. How much of your $22.6 million request involves research and how much is for purchasing detection systems?

Mr. POZESKY. $7 million is for the purchasing of the detection systems. $15.6 million is for the research, including the laboratory.

Mr. COUGHLIN. What type of systems are you purchasing?

Mr. POZESKY. We are looking at TNA and X-ray technology and millimeter wave kinds of technologies.

EXPLOSIVE VAPOR DETECTION SYSTEMS TESTS

Mr. COUGHLIN. Are you still planning to test your prototype explosive vapor detection system at Logan Airport this summer?

Mr. POZESKY. The simple answer is no. It has been suggested by Presidential Commission and the National Academy of Sciences that the FAA first have an independent testing of this before the equipment is deployed for OT&E. That is what we are going to do. We are going to Idaho Falls at DOE, which we selected for this test. If that test is successful, we will go from there to an airport.

EXPLOSIVES DETECTION LAB

Mr. COUGHLIN. Where will your explosives detection laboratory be located; what is the cost of establishing this laboratory; and to what extent are other agencies contributing to the cost of this laboratory?

Mr. POZESKY. It will be at our Technical Center in New Jersey, we are estimating a $5 million cost to establish the lab and no other agencies are contributing in this effort.

WEAPONS DETECTION

Mr. COUGHLIN. On page 80, what is the status of your evaluation of commercial X-ray screening systems that detect plastic and other non-conventional weapons?

Mr. POZESKY. Two points. The Breadboard Milumeter-Wave Passenger Screening System has been constructed. It uses holographic imaging as a new kind of technology. If something should appear suspect, it goes into additional processing for higher resolution. The linear scan system will be field-tested in fiscal year 1991. But it is not a production quality system. It is still in developmental field testing.

Regarding the commercial X-ray systems, a contract will be awarded to a national lab to evaluate the capabilities of commercially available systems. Again, we need to be very cognizant of the human factors concerns here, since these systems don't detect anything and leave the detection to the judgment of the operator.

AIRPORT SECURITY

Mr. COUGHLIN. Are you currently testing your upgraded airport security system at BWI Airport?

Mr. POZESKY. No, the test will begin later this year.

Mr. COUGHLIN. Does this system include measures beyond access control?

Mr. POZESKY. Yes, sir, it includes enhanced detection equipment, improved communication and access control procedures, and training.

SECURITY SYSTEMS INTEGRATION

Mr. COUGHLIN. What have you accomplished to date as a result of your research on hardening aircraft baggage holds against explosives?

Mr. POZESKY. Well, it basically—we have been planning thus far—we are looking at various structural integrity techniques, destructive testing on these containers will begin within the next fiscal year. We have set ourselves a goal of trying to make these containers capable of withholding blasts of about 1.5 pounds of explosives, a very ambitious goal.

Our research is just getting started.

Mr. LEHMAN. The thing that happened on Pan Am 103 when I went over there and looked at it was that the skin pealed back. Have you done any research to stop that?

Mr. POZESKY. We have completed an effort of research where we call—it is a little anti-climactic to say after this moment after the 103 accident, but there have been certain locations on an aircraft where if a bomb is detected, it is called a least-risk location, where the bombs can be placed in those locations to reduce the effect of a bomb.

The case of undetected bomb, I would say that we are relying primarily on our security systems and our detection systems to prevent that.

Mr. LEHMAN. Thank you.

AIRCRAFT ENGINE EMISSIONS RESEARCH

Mr. COUGHLIN. On page 83, you are requesting $350,000 for aircraft engine emissions research. Last year, page 932, it was indicated that you expected to publish a final new Part 34 emissions regulation by the end of 1989. What is the status of this effort?

Mr. POZESKY. We are now targeting the publication of the final report in August of 1990. It had to go under an additional review internally.

AIRCRAFT NOISE REDUCTION AND CONTROL

Mr. COUGHLIN. You are requesting $2.05 million for aircraft noise reduction. Which aircraft noise standards is this research directed toward?

Mr. POZESKY. It is directed really toward part 150, which deals with compatible land use planning around airports and part 36, which deals with standard test procedures for light aircraft, helicopters and other transport category aircraft.

Mr. COUGHLIN. Last year, page 932, it was stated that you did not know the extent of NASA's noise reduction research. Shouldn't your program be coordinated with that of NASA?

Mr. POZESKY. Yes, and it has been. In January of this year, Administrator Busey and the NASA Administrator signed an agreement for a NASA-FAA Coordinating Committee on all R&D. That activity will enable us to coordinate this work in the future.

JOINT F&E/R&D FUNDED REQUESTS

Mr. COUGHLIN. Would you provide for the record a list of all projects for which you are requesting F&E and RE&D funds simultaneously, including the amount in each category and why you require F&E funds before your RE&D work is completed?

[The information follows:]

Below is a list of projects for which we are requesting FY 1991 F&E and R,E&D funds simultaneously, including the amount in each category and why we require F&E funds before R,E&D work is complete.

Central Weather Processor (CWP): F&E—$10.0M, R,E&D—$1.7M.

There are two reasons for both F&E and R,E&D funds in the CWP program. This effort now consist of two components: the Meteorologists Weather Processor (MWP) and the Real-Time Weather Processor (RWP). F&E funds are being used for initial leasing of commercially available MWP systems to install in the field; therefore, there is no development associated with the MWP. We are using F&E as well as R,E&D funds for the RWP because the software is undergoing prototype development using commercially available off-the-shelf hardware.

Aeronautical Data Link: F&E—$10.0M, R,E&D—$9.0M.

The Data Link Processor (formerly the Weather Communications Processor) is being procured with F&E funds which will provide the communications equipment and software (with the weather data base) necessary to support the intitial weather services. The system has expansion options and capability to perform air traffic control services as well as support more automated weather services (e.g., windshear alerts and airmets). The R,E&D funds are being used to develop these follow-on services to the initial weather services, develop the software, and perform validation tests.

Automatic Department Surveillance (ADS): F&E—$6.7M, R,E&D—$5.2M.

R,E&D funding for this effort will be allocated towards step 2 data link requirements definition. Step 1 software integration of ADS position reports with the exiting ODAPS oceanic tracking system will be accomplished via ADP development. F&E activities include establishment of a development facility and attendant licensing and maintenance support costs.

Traffic Management System (TMS): F&E—$17.0M, R,E&D—$5.1M.

R,E&D funding is required for ATMS automated demand resolution (ADR), strategy evaluation (SE), and automated message distribution (AMD) concept development. F&E funding is required to implement phase II TMS enhancements for Stage 2 and 3 system upgrades. These include traffic management unit (TMU) upgrades, aircraft situation display (ADS) implementation, TRACON automation and monitor alert implementation.

Terminal Doppler Weather Radar (TDWR): F&E—$83.7M, R,E&D—$2.0M.

The TDWR system is designed with the flexibility to enhance and add weather products by changing only software. The TDWR system being procured by F&E funds will initially provide the following weather products: microburst detection, gust front detection, wind shift prediction, and reflectivity (precipitation intensity). The R,E&D funds being used to enhance the microburst detection algorithm to provide an advanced warning of the formation of microbursts and to provide TDWR turbulence detection products.

Precision Runway Monitors: F&E—$10.6M, R,E&D—$2.0M.

R,E&D funding is to continue research on applying the precision monitor to situations other than closely spaced parallel runways, i.e., converging runways, and triple and quadruple parallels. F&E funding will continue the procurement of the first two runway monitor systems.

Global Positioning System (GPS): F&E—$0.8M, R,E&D—$1.6M.

F&E funds will be used for technical support services during preparation of specification and procurement request for GPS integrity monitor system. R,E&D funds are required for Washington and Technical Center costs to support validation tests of the GPS integrity monitor system concept, and for additional examinations of LORAN/GPS interoperability.

Advanced Automation System (AAS) F&E—$556.3M R,E&D—$5.0M

R,E&D funding is requested for FAA in-house costs associated with managing the AAS program. F&E funding is requested for the acquisition contract and related support and implementation activities.

Voice Switching and Control System (VSCS) F&E—$185.1M-R,E&D—$1.1M

R,E&D funding is requested for FAA in-house costs associated with managing the VSCS program. F&E funding is requested for the acquisition contract and related support and implementation activities.

Management and Control F&E—$4.0M R,E&D—$3.1M

R,E&D funding is requested for contract support of R,E&D oversight activities. F&E funding is requested for contract support of F&E oversight activities.

National Airspace Data Interchange Network (NADIN) II: F&E—$4.5M R,E&D—$.2M

The R,E&D funds are requested to perform modeling studies of NADIN II network evolution and to continue the analysis necessary to establish expansion sizing requirements. F&E funding will be utilized for NADIN II Phase I acquisition.

FUNDING DISTRIBUTION

Mr. **Coughlin**. Mr. Chairman, that concludes the questions.

Mr. **Lehman**. Thank you. I just have a couple of more.

How do you determine which engineering to fund in R&D and which to find in F&E? What criteria do you use?

Mr. **Pozesky**. An excellent question. It is one in which we are wrestling in-house. We generally limit F&E funding to those things related to the air traffic control system, not including such things as aging aircraft, for example.

The estimate is also done on the question of the maturity of technology. If we feel that the technology is fieldable, sufficiently mature, then we can make a use—we do sometimes request that kind of work in the F&E.

That is a concern to us. It is one which I know the Administrator is concerned about, and we will be reexamining that in the future. There is, however, a need—I believe, at least to continue to sponsor some development work in F&E in order to get these productions under way. Otherwise, we are going to suffer large delays in translating. It is whether the technology is ATC-related or not.

Mr. **Lehman**. Expand on this information for the record.

[The information follows:]

For a program to be funded in F&E, it is reviewed against specific criteria; i.e., is it ATC related, is the technology to be acquired mature enough to be implemented and supported in the field, and is the development of an end-use and supported in the field, and is the development of an end-use system considered a minimal risk in light of that technology.

ADDITIONAL QUESTIONS FOR THE RECORD

Mr. LEHMAN. We have a number of questions for the record from several of our members. We appreciate your cooperation.

AIRSPACE REVIEWS

Mr. LEHMAN. The FAA has completed a number of airspace reviews in various parts of the country which have improved the efficiency of the air traffic control system. In light of extraordinary growth in traffic in Miami, the Caribbean and San Juan, what is the schedule for airspace reviews of the Miami and San Juan areas? Can such reviews be completed by the beginning of next winter's season which is likely to set new air traffic records?

[The information follows:]

There is currently no FAA headquarters plan to do an airspace review of the Miami, San Juan, and Caribbean area. Our Southern regional office has initiated a study to determine the feasibility of the South Florida Supplemental Air Carrier Airport in northwestern Dade County. Initial results of this study are scheduled to be available in the fall of 1990.

RULEMAKING ON FLIGHT ATTENDANCE DUTY TIME

Mr. LEHMAN. It is my understanding that last fall, on completion of an FAA study of flight attendant duty time, FAA officials assured senior members of the Public Works Committee that rulemaking action would be undertaken. Would you describe the status of and schedule for this duty time rulemaking?

[The information follows:]

The Notice of Proposed Rulemaking (NPRM) has been drafted. We anticipate issuance during FY 1990.

HAZARDOUS MATERIALS VIOLATIONS

Mr. COUGHLIN. What is the DOT's view of hazardous materials violations committed by shippers or passengers who fail to disclose the materials to the air carrier?

[The information follows:]

Undeclared shipments of hazardous materials present a serious threat to the safety of the traveling public and to air carrier and airport personnel who handle these shipments. Where a significant unsafe condition exists and there is evidence to support the allegations that a person offered or accepted a shipment of hazardous materials which was not in compliance with the hazardous materials regulations, for transportation aboard an aircraft, then civil penalty action is appropriate.

HAZARDOUS MATERIALS ENFORCEMENT

Mr. COUGHLIN. What, if any, enforcement guidance is given to FAA in relation to such cases?

[The information follows:]

Specific detailed guidance on the investigation and handling of hazardous materials violations is provided in the FAA's Compliance and Enforcement Program, Order 2150.3A. The guidance for processing a hazardous materials incident provides that if a significant unsafe condition exists, then the FAA is to conduct an investigation and proceed with civil penalty action if the evidence supports a finding of violation.

Mr. COUGHLIN. Within what time period must hazardous materials enforcement cases be opened, to assure that cases are processed in a timely fashion? Does the period vary by modal administration?

[The information follows:]

Civil aviation security special agents are instructed to issue letters of investigation within 10 days of becoming aware of the incident.

HAZARDOUS MATERIALS ENFORCEMENT CASES

Mr. COUGHLIN. How many hazardous materials enforcement cases were opened by FAA in each of the last five years?

[The information follows:]

	Fiscal year—				
	1985	1986	1987	1988	1989
Total civil penalty cases opened:	87	69	92	121	94
Total civil penalty cases closed:	46	55	45	37	34

Mr. COUGHLIN. How many hazardous materials enforcement cases were closed by FAA in each of the last five years?

[The information follows:]

The oldest cases closed in the past five years are:

Name	Case number	Date received	NPCP	Closed	Approximate elapsed time from opening to closing
1985. Bomhoff & Associates	80AL720016	4/13/81	10/02/81	7/09/85	4 years 3 months.
1986: Robert Hunt Communication	80SW710212	3/16/81	4/03/81	3/14/86	5 years.
1987: Airlift International, Inc.	81EA710017	8/18/81	9/24/81	2/05/87	5 years, 6 months.

Name	Case number	Date received	NPCP	Closed	Approximate elapsed time from opening to closing
1988: Troeh, Paul R., Jr.	81NW720011	8/17/81	10/26/81	10/24/88	7 years Bankruptcy.
1989: Department Health and Human Services.	86EA720003	4/04/86	5/15/86	9/25/89	3 years, 5 months.

The most recent cases closed in the past five years.

Name	Case number	Date received	NPCP	Closed	Approximate elapsed time from opening to closing
1985: New York News	84GL730095	2/01/85	9/04/85	9/26/85	7 months.
1986: Southern Air Transport	85EA710127	3/14/86	4/10/86	6/12/86	3 months.
1987: Combustion Enginering Inc.	86EA720110	1/05/87	3/31/87	9/16/87	8 months.
1988: Customs Plastics	87GL740114	8/14/87	11/02/88	12/09/88	1 year, 4 months.
1989: Flying Tigers	87SO730574	2/25/88	4/04/89	8/03/89	1 year, 6 months.

What is the current backlog of hazardous materials cases awaiting action as follows:

(1) preliminary legal review: *213* hazardous materials cases are pending preliminary review:

1985	08
1986	05
1987	16
1988	63
1989	61
1990	60

(2) issuance of notices of proposed civil penalties; *291* notices of proposed civil penalties have been issued:

1985	52
1986	56
1987	41
1988	61
1989	36
1990	45

UNDECLARED HAZARDOUS MATERIALS SHIPMENTS

Mr. Coughlin. During 1988, the air carrier industry reported at least 127 undeclared hazardous materials. In 1989, the number of such discoveries exceeded 150. Can the DOT explain the disparity between the enforcement actions closed, and those undeclared shipments discovered by the air carrier industry?

[The information follows:]

The agency desires to process these cases in an expeditious manner. However, it is difficult to determine prospectively the amount of time an attorney needs to process a case due to the following factors:

(1) The complexity of each case, including resolution of evidentiary matters, and coordination with other government agencies.

(2) The heavy workload involving enforcement actions other than hazardous material violations, (enforcement of the Federal Aviation Regulations) and other enforcement related activities.

The number of hazardous materials cases opened during a given period of time will not, ordinarily, coincide with cases closed during that time period. Each hazardous materials incident involves different circumstances and varying regulatory violations. Therefore, there is very little likelihood that the hazardous materials cases will be processed and closed at exactly the same rate at which the violations are opened.

While the facts of some cases are relatively straightforward and take less time to process, other more complex cases require extensive discussions between the Office of Civil Aviation Security and the Chief Counsel's Office to determine which regualtions, if any, were violated and the appropriate penalty to be proposed. In addition, an alleged violator may choose to reach a quick resolution of a civil penalty action through informal procedures or may request a hearing. Since there is not a typical hazardous materials case and there is no assurance that a given case will be resolved through informal procedures, it is impossible to predict or to determine whether the number of cases closed in a particular year will match the number of new cases which are opened.

BACKLOG OF HAZARDOUS MATERIALS CASES

Mr. COUGHLIN. In FAA, what is the current backlog of hazardous materials cases awaiting action as follows:

Preliminary legal review?

Issuance of letters of proposed civil penalties?

Closure without formal sanction (i.e., by administrative letter)?

Closure with civil penalty?

[The information follows:]

Preliminary legal review? As of April 13, 1990, there are *213* hazardous materials cases pending preliminary review.

Issuance of letters of proposed civil penalties? As of April 13, 1990, *291* notices of proposed civil penalties have been issued.

Closures without formal sanction (i.e., by administrative letter)? As of April 13, 1990, *36* cases have been closed without formal sanction.

Closure with civil penalty? As of April 13, 1990, *123* cases have been closed with a civil penalty.

Mr. COUGHLIN. Of those cases, how many involved undisclosed or undeclared hazardous materials?

[The information follows:]

The majority of these cases involved undeclared or improperly detected hazardous materials. An exact count would require review of each case, for which time was not available for the purpose of this response.

IN-FLIGHT FIRE

Mr. COUGHLIN. On February 3, 1988, a shipment of at least two hazardous materials, illegally identified simply as "laundry equipment," caused an in-flight fire aboard a passenger aircraft with 126 people aboard. As a result of the fire, smoke and fumes entered the passenger cabin, and the cabin floor began to soften. Press accounts of the incident reported that the shipper involved in the case was known from the date of the incident.

Why did FAA allow seventeen months to pass before issuing even a notice of proposed civil penalty in this very serious case?

[The information follows:]

The facts and circumstances of this hazardous materials incident, which gave rise to the proposed civil penalty action, were extremely complicated. Extensive investigations of the circumstances and cause of this incident were conducted by the United States Attorney for the Middle District of Tennessee, the Federal Bureau of Investigation, the National Transportation Safety Board, and the FAA. Specifically, the FAA expended a considerable amount of time and effort conducting its investigation and assisting the Office of the United States Attorney with its investigation. The United States Attorney for the Middle District of Tennessee advised the FAA that he was declining criminal prosecution against the shipper of the hazardous materials on October 24, 1988.

The following December, the FAA's Office of Civil Aviation Security completed its review of this hazardous materials incident and forwarded an enforcement investigative report to the Office of the Chief Counsel. A considerable amount of time was devoted to reviewing the enforcement investigative report and discussing the case with appropriate security staff before proceeding with legal enforcement action.

Mr. COUGHLIN. On July 10, 1986, a cargo aircraft made an emergency landing in Cincinnati due to smoke and fumes in the cockpit. The cause was determined to be an improperly prepared shipment of nitric acid. What is the status of this case?

In view of the prolonged period over which there has been no action in this case, can you identify the office which is responsible for the delay?

[The information follows:]

As of today, this case has not been initiated; i.e., a notice of proposed civil penalty has not been issued. However, the case has been reviewed for legal sufficiency and the Office of Chief Counsel is prepared to issue a notice. Since the U.S. Court of Appeals for the District of Columbia in *Air Transport Association of America v. Department of Transportation, et. al.* (Docket No. 90–1189, April 13, 1990), ordered the FAA not to initiate new civil penalty prosecutions (which include hazardous materials civil penalty cases since these cases are processed under 14 C.F.R. 13.201–235) until the FAA conducts rulemaking proceedings regarding its rules of practice for administrative civil penalty actions, a notice of proposed civil penalty cannot be issued until rulemaking proceedings are completed. Upon completion of these proceedings, a notice will be issued promptly.

In view of the prolonged period over which there has been no action in this case, can you identify the office which is responsible for the delay?

The Office of Civil Aviation Security required 15 months to complete its review of this case. In January 1988 the matter was forwarded to the Office of the Chief Counsel for its review. During this period, the attorneys handling this case have consulted with the security staff personnel on various issues in this case, and at times, required additional information in order to fully review and process this case. Moreover, due to the number of other pressing enforcement cases and issues which affected aviation safety and security during the past year our office, upon prioritizing these matters, necessarily devoted some time to other enforcement matters which ordinarily would have been spent on this case.

HAZARDOUS MATERIALS CASES

Mr. COUGHLIN. Does DOT believe that hazardous materials enforcement actions receive sufficient priority in the FAA Office of Chief Counsel?

[The information follows:]

DOT is aware that the FAA has not initiated enforcement actions over the past year as expeditiously as desired. However, the FAA recognizes the seriousness of such violations and has assured that it is striving to improve its enforcement of the hazardous materials regulations.

The FAA recognizes the serious harm to passengers, air carriers, and airport personnel which may result from an undeclared or improperly packaged hazardous materials shipment, and believes that vigorous enforcement of the hazardous materials regulations should be a primary objective of its enforcement program. In the first 4 months of 1990, the FAA has added two new attorneys to the staff responsible for hazardous materials enforcement, and the results are significant. Over this time period, the FAA has initiated 45 enforcement actions for a total amount of $817,750 in proposed civil penalties. In addition, the FAA attorneys are making every effort promptly to schedule informal conferences and to provide alleged violators timely interim responses to ensure the swift processing of the enforcement actions. Due to a recent decision of the U.S. Court of Appeals for the District of Columbia that invalidated the rules of practice governing civil penalty cases for the agency's failure to follow notice and comment procedures, the FAA has been precluded from initiating any hazardous materials civil penalty actions since April 13, 1990. However, it expects to resume initiation and prosecution of hazardous materials cases following issuance of a final rule in June. The FAA is confident that, with increased staffing and renewed emphasis on these cases, it will surpass the total amount of initiated cases of any previous year. The FAA is currently considering another modest increase in legal resources to ensure that the Office of Chief Counsel keeps pace with the increase in referrals and expedites its time to review and initiate hazardous materials cases.

ATTORNEYS ASSIGNED TO HAZARDOUS MATERIALS CASES

Mr. COUGHLIN. How many FAA attorneys have been assigned to hazardous materials in each of the past two years, and what percentage of their time do they spend on such cases? In total, how many attorneys work in the FAA's Office of Chief Counsel? How many hazardous materials cases have each of these attorneys processed as follows:

Performed preliminary legal review?
Issued letters of proposed civil penalties?
Closed without formal sanction (i.e., by administrative letter)?
Closed with civil penalty?

[The information follows:]

Performed preliminary legal review 1-35, 1-40, 1-17, 1-70, 1-6.
Issued letters of proposed civil penalties 1-35, 1-40, 1-17, 1-70, 1-6.
Closed without formal sanction 1988-10, 1989-11.
Closed with a civil penalty 1989-32, 1989-24.

Mr. COUGHLIN. How many different offices within FAA must review a hazardous materials case from initiation to conclusion? How long does each office take in this process?

[The information follows:]

1. Civil Aviation Security Field Office:
2. Regional Civil Aviation Security Division:
3. Office of Civil Aviation Security Division:
4. Office of the Chief Counsel, AGC 260

How long does each office in this process? The agency desires to process these cases in a expeditious manner.

However, it is difficult to determine prospectively the amount of time an attorney needs to process a case due to the following factors:

(1) The complexity of each case, including resolution of evidentiary matters, and coordination with other government agencies.

(2) The heavy workload involving enforcement actions other than hazardous material violations, (enforcement of the Federal Aviation Regulations) and other enforcement related activities.

Mr. COUGHLIN. In light of the answers to the above questions, do you believe that hazardous materials are handled in a timely fashion by FAA?

[The information follows:]

It is our goal to handle all enforcement actions in an expeditious manner. Due to limited resources and staffing, some cases have not been initiated as quickly as we would have liked. However, the Office of Chief Counsel consistently has initiated civil penalty actions for hazardous materials violations within statutory time limits. The FAA recognizes the importance of hazardous materials enforcement and has taken the appropriate steps to speed-up the processing of these cases. Since the beginning of this calendar year we have initiated 45 cases (which is more than the number of cases initiated in calendar year 1989). This is due primarily to the hiring of an additional attorney in the branch responsible for handling hazardous materials cases. Moreover, we expect to employ additional staff in the upcoming year which should, in turn, increase our procsssing of hazardous materials cases.

HAZARDOUS MATERIALS ENFORCEMENT ACTIONS

Mr. COUGHLIN. In fiscal year 1989, FAA was given sufficient authority to significantly increase its enforcement. How can you explain why there has been no improvement in the enforcement actions taken against these numerous hazardous materials safety violations?

[The information follows:]

During 1988 and 1989, all legal enforcement actions concerning violations of the hazardous materials regulations were handled in the FAA's Office of the Chief Counsel by a staff comprising one manager and four attorneys. Due to a departure of three attorneys in the past year, this staff, for several months, consisted of only three relatively junior level attorneys, two in their first year with the FAA. Hazardous materials cases are not handled by FAA regional staff attorneys, who already are saddled with individual enforcement caseloads of 200–400 cases. In addition to handling approximately 75 to 100 hazardous materials cases, each attorney was responsible for numerous other enforcement duties, including handling violations of prohibited airspace and violations of U.S. regulations by foreign pilots. This staff also has been primarily responsible for implementation of the agency's general civil penalty assessment authority, including related public correspondence and litigation.

While the number of enforcement issues has grown over the past year or so, the FAA's staff has not grown commensurately. Consequently, some time ordinarily devoted to hazardous materials enforcement was necessarily spent on other pressing compliance and enforcement issues and responsibilities.

Notwithstanding the many time-consuming enforcement issues of the past year, the FAA initiated 36 hazardous materials civil penalty actions in 1989. Although this is a significant decrease from the previous year when the FAA's staff initiated 61 cases, the FAA has already surpassed 1989's total in less than 4 months of 1990.

AIP DISCRETIONARY GRANT PROGRAM

Mr. GRAY. What level of funds do you project to be available in the AIP discretionary grant program in fiscal year 1990, fiscal year 1991, fiscal year 1992, and fiscal year 1993?

[The information follows:]

Projected discretionary funding is as follows:

	Total discretionary funds available	Discretionary available for Cap/Saf/Sec/Noise projects
Fiscal year:		
1990	$610,778,983	$135,146,795
1991	669,700,000	195,775,000
1992	712,200,000	234,025,000
1993 [1]	897,200,000	330,525,000

[1] It is assumed that in fiscal year 1993 the full effects of implementation of the passenger facility charge will be realized.

Mr. GRAY. What amount of these funds is taken up by existing Letters of Intent which FAA intends to approve for the same fiscal years?

[The information follows:]

Discretionary funds committed to existing LOI's are as follows:

	Existing LOI's	Denver	Pittsburgh	Total
Fiscal year:				
1990	$25,000,000			$25,000,000
1991	41,440,000	$25,000,000	$7,000,000	73,440,000
1992	45,239,500	30,000,000	7,000,000	82,239,500
1993	28,500,000	32,000,000	7,000,000	67,500,000

No funding decisions have been made for other LOI's that have been requested.

Mr. GRAY. How, then, do you plan to meet the capacity grant requests of other airports, which I am told by FAA staff total $400-$500 million a year if you just count the "realistic" requests and into the billions if you count all actual requests?

[The information follows:]

We will consider all high priority needs and will approve funding for those projects to the extent available. Some locations may not receive the entire amounts requested; however, all reasonable funding options will be considered.

PHILADELPHIA INTERNATIONAL AIRPORT

Mr. **Gray**. More specifically, what are your plans to meet the needs of the Philadelphia International Airport? Is this airport on your priority funding list?

[The information follows:]

We are well aware of the proposed program at Philadelphia and have been coordinating a schedule to provide timely funding for the eligible work. We were able to approve $11.5 million of discretionary funds for fiscal year 1989 for the initial phase of the work. These funds were combined with $6,679,000 entitlement funds for a total of $17,829,000. This represents a substantial commitment on the part of FAA to support the current development plans. Based on the orderly development of these projects, we are now prepared to consider additional funding this fiscal year.

SATELLITE SEARCH AND RESCUE

Mr. **Mrazek**. Last year this subcommittee approved funding for five new LUT's for satellite search and rescue operations. It is my understanding that our commercial air carriers are not required to carry either the 121.5 MHz or 406 MHz beacon on international flights. What is the FAA's position on this matter?

[The information follows:]

Commercial air carriers are not required to carry the automatic crash-activated type of Emergency Locator Transmitter (ELT) that is designed and required for the small general aviation airplanes. Commercial air carriers are, however, required to carry the survival type ELT.

Survival ELTs are manually-operated or actuated upon contact with water. These ELTs are required items of equipment for transport category airplanes and rotorcraft engaged in extended overwater operations or operations over uninhabited terrain. Thus, while the carriage of an ELT could depend on the particular route flown by an aircraft, the regulations require that flag and supplemental air carriers aircraft carry survival ELTs, Both types of ELTs are appropriate to operational needs and provide the same benefit: to save lives by increasing the number of survivors rescued after aircraft accidents.

Mr. **Mrazek**. Even though carriers are not mandated to carry either the 121.5 or 406 MHz beacon, does the FAA know how many carriers currently equip their planes with either beacon?

[The information follows:]

The FAA does not have a count of the number of carriers that currently equip their planes with these types of beacons.

Commercial air carriers are not required to carry the automatic crash-activitated type of Emergency Locator Transmitter (ELT) that is designed and required for the small general aviation airplanes. Commercial air carriers are, however, required to carry the survival type ELT.

Survival ELTs are manually-operated or actuated upon contact with water. These ELTs are required items of equipment for transport category airplanes and rotocraft engaged in extended overwater operations or operations over uninhabited terrain. The regulations require that all flag and supplemental air carrier transport aircraft carry survival ELTs. Both types of ELTs are appropriate to operational needs and provide the same benefit: to save lives by increasing the number of survivors rescued after aircraft accidents.

SCHEDULE/COST 406 MHZ BEACON

Mr. **Mrazek**. If you had to pick a time frame during which all commercial carriers would be equipped with the new 406 MHz beacon what would it be? What would the additional operational costs be for the airlines?

[The information follows:]

The FAA feels that it is premature to propose a time for equipping all commercial carriers with 406 MHz Emergency Locator Transmitters (ELT). The method, however, for practical implementation is now being developed by the International Civil Aviation Organization and the FAA working with the aviation community. There is a need for additional information in regard to aeronautical 406 MHz ELTs in the areas of: performance in an operational environment; and cost/benefit. This information will provide a basis for future decisions regarding the 406 MHz beacons. To accelerate the introduction of the 406 MHz capability, the FAA is pursuing the adoption of a Technical Standard Order which would contain technical and performance criteria for the 406 MHz ELT and allow users to carry the 406 MHz ELT capability as an optional adjunct to the 121.5/243.0 MHz capability.

At least one issue remaining to be more fully addressed is the battery for the 406 MHz ELT capability; it appears that only a Lithium type battery has the characteristics to satisfy the 406 MHz ELT requirements (power, size weight, etc.). Lithium type batteries have posed safety problems in the past, and the FAA must be assured that such problems are resolved.

ICAO'S POSITION

Mr. **Mrazek**. What is your understanding of ICAO's position on mandating all international flights be equipped with 406 MHz beacons for Sarsat operations? If the United States takes the lead in this area, will ICAO adopt that position for all nations that have international commercial air service?

[The information follows:]

Our understanding of the International Civil Aviation Organization's (ICAO) position on mandating 406MHz Emergency Locator Transmitters (ELT) for all international flights is as follows: The advantages of using the 406 MHz frequency are unquestionable, as this will ensure optimum cooperation with the COSPAS-SARSAT (satellite) system. However, it is recognized that several questions remain to be solved before a widespread implementation of ELTs operating on 406 MHz can be realized. These questions include cost, homing capability and batteries. Therefore, it is recognized that during the near term there is a continued role for improved ELTs operating on 121.5/243 MHz, which are also supported by the COSPAS-SARSAT system.

Although ICAO is promoting a gradual transition program for all aircraft operations (after the year 2000 all newly procured aviation distress beacons would operate on 406 MHz) further action is being proposed for international flights. The ICAO Secretary is considering amendments to Annex 6, Parts I, and III for the carriage of ELTs by all aircraft used in international flights, except where specific exemption has been granted by the appropriate authority for aircraft used in general aviation.

The United States has taken the lead in this area with the development of the COSPAS-SARSAT system and working with ICAO on the methodology for implementation of 406 MHz ELTS. The position for mandatory carriage of ELTs by all aircraft used in international flights in now being developed.

ASDE-3 RADARS

Mr. **Mrazek**. At a hearing held on March 6, 1990, before the House Subcommittee on Transportation, Aviation and Materiels, several aviation safety experts testified that the FAA should install more ASDE radars than are presently under contract. These witnesses included the Hon. John K. Lauber of the National Transportation Safety Board, Mr. John O'Brian of the Air Line Pilots Association, and Mr. J. Roger Fleming of the Air Transportation Association.

Does the FAA plan to order more ASDE-3 radars with fiscal 1991 funding?

[The information follows:]

The Federal Aviation Administration does not plan to order more ASDE-3 radars with fiscal 1991 funding.

Mr. **Mrazek**. Mr. John O'Brian specifically urged that all airports with Category III operations have ASDE-3 radars installed. According to FAA Order 8400.8, change 2, the following thirteen airports are approved for Category III operations, but are not scheduled for ASDE-3:

Covington, Kentucky (Cincinnati); Dayton, Ohio; Fairbanks, Alaska; Indianapolis, Indiana; Jacksonville, Florida; Milwaukee, Wisconsin; Oakland, California; Orlando, Florida; Sacramento, California; Salt Lake City, Utah; San Antonio, Texas; Shreveport, Louisiana; Windsor Locks, Connecticut.

Since the manufacturer of the ASDE-3 radar is scheduled to deliver the last radar in April 1992, should the FAA order thirteen more ASDE-3 radars to realize the cost benefits of a continuous production line?

What are the plans, if any, for the FAA to procure ASDE radars in the future?

[The information follows:]

FAA has validated the need for additional ASDE systems, however, funding has not been provided due to overall project priorities and appropriation levels. We plan to procure additional systems in the future, but due to funding limitations, these additional sites are not planned until FY 1995.

INITIAL CONTROLLER TRAINING COSTS

Mr. **Mrazek**. What is the cost to the Federal Government to train each controller at the Oklahoma training center? Does that include the salary paid while in training? What is the salary paid?

[The information follows:]

It costs approximately $9,800 for each student that attends the air traffic initial qualification screen training in Oklahoma City. That amount includes the student's salary during training (approximately $3,500).

CONTROLLER WASHOUT RATES

Mr. **Mrazek**. What is the washout rate at the center? Have any improvements been made in this rate over the years? I have heard anecdotal reports that there is a higher washout rate among students from the Northeast, particularly the New York area. Is this true, and if so how do you account for it? Can you provide for the record a breakdown of the washout rate by region?

[The information follows:]

Approximately 42 percent of the individuals who entered ATC initial qualification training from 1981 to present have not successfully completed the program (32 percent failed and 10 percent withdrew for a variety of reasons). This rate has remained relatively constant over the years.

The Eastern Region, which includes New York, has the highest rate of success in the screen. A breakdown of the success rate by region follows:

ACADEMY AIR TRAFFIC INITIAL QUALIFICATION TRAINING SUCCESS RATE BY REGION

Region	Number entered	Number passed	Passed (percent)
Eastern	1,276	791	62
Central	549	328	60
Great Lakes	2,059	1,225	60
Northwest Mountain	870	519	59

ACADEMY AIR TRAFFIC INITIAL QUALIFICATION TRAINING SUCCESS RATE BY REGION—Continued

Region	Number entered	Number passed	Passed (percent)
Western Pacific	1,377	797	58
Southern	2,048	1,157	56
Alaska	291	165	57
New England	638	345	54
Southwest	1,433	761	53
Total	10,541	6,088	58

ATC RECRUITING & PLACING PROBLEMS

Mr. MRAZEK. There is a great deal of difficulty getting enough air traffic controllers for certain airports, particularly in New York (also Chicago). How many recruits for training do you get from the New York area? Is it a difficult problem finding people from the New York area to go to Oklahoma?

[The information follows:]

We do not keep statistics of applicants on a city by city basis. Currently, the Eastern Region (which includes New York) has sufficient applicants who have tested and are in the employment process to carry them through May of 1991 based on our projected job openings. The Great Lakes Region (which includes Chicago) has sufficient applicants to carry them through September of 1991 based on projected openings.

Newly hired controllers usually do not begin their careers in the towers where we have the most significant staffing problems. Except for some special programs, we start new controllers in less complex towers. The problem is in finding experienced controllers to transfer to very busy facilities in high cost of living areas.

The FAA does not have a problem finding people to go to Oklahoma. We have no data to suggest that the short training period in Oklahoma City is a significant factor in people making a decision to become an air traffic controller.

SINGLE VS. MARRIED ATC RECRUITS

Mr. MRAZEK. What percentage of your students are single and what percentage are married (and have children)? Is it difficult to get married individuals to uproot themselves from their families to train in Oklahoma?

[The information follows:]

We do not collect or maintain data on the marital or family status of employees or students. Our employees go to Oklahoma City and other training locations on a temporary basis throughout their careers and are informed about our training requirements early in the employment process.

CONTRACTING OUT ATC TRAINING

Mr. MRAZEK. Has the FAA ever considered contracting out air traffic controller training to private schools and institutions?

[The information follows:]

The FAA has considered using private schools and institutions for air traffic controller training and is presently exploring ways to accomplish this in its Flight Plan for Training. Most of the air traffic controller training currently conducted by the FAA Academy is provided through a contract for instructional services with the University of Oklahoma. En route field facility air traffic controller training is also currently provided by contract.

Mr. MRAZEK. It has been suggested that training could be done at a much lower cost if it were contracted out. Do you believe this to be true?

[The information follows:]

The FAA cannot support a general statement that training can be provided at lower cost if contracted out. However, specific contracts currently in place for instructional services such as the Academy screen and air traffic en route field facility training have proven to be cost effective.

CONTRACTING OUT—PILOT PROGRAM

Mr. MRAZEK. Would the FAA oppose a pilot program that contracts out some of the training? Are there any problems you foresee in taking this approach? Are there any benefits that you foresee to this approach?

[The information follows:]

FAA now contracts out a significant portion of Academy air traffic training to the University of Oklahoma, and contractors conduct our en route field facility training. FAA has initiated pilot projects with industry and academia for air traffic controller initial training, an area that seems to offer the greatest promise for success.

Potential problems are being addressed in such areas as standardization, quality control, and assurance that employment opportunities remain available to women and members of minority groups. The greatest benefit to be achieved by off-loading this training to academia, industry, and student applicants is the shifting of the costs from government to the private sector and the invidual.

ATC RECRUITMENT EFFORTS

Mr. MRAZEK. Do you think recruitment efforts would be enhanced if a regional approach to training were taken? Do you think this could help solve the problem of attracting air traffic controllers to hard-to-staff airports (New York natives would be more likely to want to stay in New York than enticing someone from Nebraska to work in New York. Likewise in Chicago)?

[The information follows:]

A regional approach to training is already in use: the majority of air traffic training is conducted at the facility. The regions recruit now for their own areas. The problem in most hard-to-staff facilities is not in the training or recruiting of the new applicants, but in attracting experienced controllers from less busy facilities.

LIGHTNING DISSIPATION SYSTEMS

Mr. SABO. Could you please give me an update on the testing of lightning dissipation systems (LDS) being done on the control towers at the Orlando and Tampa airports? If the testing has been completed please supply the results.

[The information follows:]

Answer: The test on lightning protection multipoint discharge systems at Orlando and Tampa, Florida, Airports was terminated on January 11, 1990. The multipoint discharge systems did not prove to be more effective than a properly installed FAA standard air terminal system.

MID-AMERICAN AVIATION RESOURCE CONSORTIUM

Mr. SABO. What is the current status of MARC in Minnesota and have all the appropriate agreements been completed to fund the entire program? If so, is the FAA satisfied with the agreements? When does the FAA anticipate the first graduating class?

[The information follows:]

The MARC project is several months behind schedule. This is a result of the additional start-up time needed by MARC personnel to renovate the Flying Cloud facility, hire instructors, and develop curricula. A cooperative agreement with a Statement of Work has been signed by the FAA and Minnesota officials and is the contract for the project. The FAA will transfer $3.4M to MARC as required in the 1990 Appropriations Act. FAA is satisfied with the agreement's project specifications; we anticipate the first class to graduate in the spring or summer of 1991.

Mr. SABO. Does the FAA plan to take an active role to assure the success of MARC?

[The information follows:]

The FAA is coordinating with all organizational components to assure the success of MARC. The FAA staff at the FAA Academy, Great Lakes Region, and headquarters have been briefed on the nature and importance of the program. The FAA program office (AHT) has a continuing dialogue with MARC personnel to guide the program by ensuring it is configured to produce quality air traffic controllers.

FAA ACADEMY ATC STUDENTS

Mr. SABO. Last year you answered the following series of questions, please update the data. How many students currently hired by the FAA and sent to FAA's Air Academy end up becoming air traffic controllers? How many drop out? Of those who drop out how many take other jobs with the FAA (Actual numbers and percentages)?

[The information follows:]

For calendar years 1986 through 1989, 9,480 individuals entered the air traffic screening program at the FAA Academy. Of those, 5,573 (59%) passed, 2,924 (31%) failed, and 983 (10%) withdrew. Of the 5,573 individuals passing the screen, 6 resigned for personal reasons after successfully completing the screen.

Following the screen, 270 (5% of those passing the screen) failed field training; 227 (4%) withdrew for other reasons; 1,864 (33%) reached FPL status; 206 (4%) switched options; 3,000 (54%) are still in the developmental stages of training working toward FPL status.

Approximately 191 (38% of those failing or withdrawing from field training) of those leaving the air traffic controller occupation before reaching FPL between calendar years 1986 and 1989 are still employed with FAA.

Mr. SABO. What is the cost to the FAA for each drop-out and what was the total cost in 1987, 1988, 1989?

[The information follows:]

The costs incurred by FAA for controllers who do not successfully complete the air traffic screen at the Academy follow:

ESTIMATED COST FOR CONTROLLER "DROPOUTS" [1]

[Dollars in thousands]

Fiscal year	Each dropout	Total all dropouts
1987	$8.7	$7,359.0
1988	9.6	5,587.0
1989	9.8	9,372.0
1990 [2]	9.8	4,007.0

[1] Assumes drop out at conclusion of screen (most typical situation).
[2] Through April 1990.

The Academy screen, by separating very early those who will and won't be successful in the occupation, saves the agency the expenditure of dollar and time resources which would be incurred were the screening to occur later in the individual's FAA career.

Mr. SABO. Is the FAA still experiencing a shortage of applicants for air traffic control positions?

[The information follows:]

The FAA is not experiencing a shortage of applicants for air traffic control positions. We do have trouble finding people who have a high level of aptitude to do the work, particularly women and minorities. Among the solutions to that problem are fostering air traffic programs in colleges and universities and targeting our recruitment toward applicants who are most likely to succeed in the occupation.

MID-AMERICAN AVIATION RESOURCE CONSORTIUM

Mr. SABO. Congress had intended for the University of North Dakota to receive $3 million as part of its involvement in the Mid-American Aviation Resource Consortium. However, some legal problems have kept the institution from receiving this funding. What is the current status of this funding? Is it the FAA's intention to fund this part of the program?

[The information follows:]

Language has been proposed by the Senate to be included in the Dire Emergency Supplemental Appropriations Bill for FY 1990 (HR 4404) to give FAA the legal authority to award a grant to the University of North Dakota. With the passage of this bill, FAA will officially negotiate the grant with the institution.

FAA staff have met with institutional representatives to discuss the proposed project. Funds will complete the acquisition of telecommunications equipment to disseminate lectures as part of the University's Airway Science Program. FAA continues to support the University of North Dakota's Airway Science Program and is anxious for the institution to commence lectures series to be shared with other aviation institutions.

FLIGHT SERVICE STATION MODERNIZATION

Mr. SABO. Last year the committee inserted the following language in the Transportation Appropriations Report:

"National weather graphics display system—the committee has deleted from the 'flight service station modernization' account $4 million that would begin the first year of a multi-year procurement for a weather graphics display system. The committee understands that this proposal could cost ten times more than updating a current system without significantly improving the FAA's ability to provide weather graphics information.

"The committee directs the FAA to keep in place the current interim weather graphics systems while GAO performs an analysis of its proposal for a new system. These interim systems are currently operating in 48 of the 61 FAA's flight service station facilities and the remaining facilities are scheduled to be outfitted. The current systems will continue in operation until Congress reviews the GAO's study."

Did the FAA follow this report language?

[The information follows:]

Yes, we did.

Mr. SABO. What is the current status of this program and does the FAA still plan on implementing a national weather graphics display system? If so, what are the cost estimates to complete such a national system?

[The information follows:]

We are in the process of developing an acquisition strategy for a national program.

Mr. SABO. Of the 61 FAA weather facilities how many to date have interim systems in place? What has the cost to the FAA been for these systems? Could these interim systems be updated into a national system? If so, what would be the cost? If not, why not?

[The information follows:]

Currently, 46 of the scheduled 61 automated flight service stations (AFSS's) are commissioned and utilizing various interim weather graphics systems.

A total of $12.7 million has been obligated for interim systems through FY 1990. These costs provide for only 776 of the eventual 1558 graphics positions that will be required after full consolidation. It is estimated that further expansion, plus replacement of aging equipment (already in progress), will increase the cost of the interim systems to approximately $23.0 million by the end of FY 1993.

GAO, in September 1989, concluded that updating interim systems was not a viable option for the following reasons: Criteria for sole source procurement to interim contractors cannot be met; in-place equipment is unique to each vendor, giving incumbents competitive advantage if existing hardware was provided as government furnished equipment; the age of the interim equipment is a concern; and the FAA has made commitments to members of Congress for full and open competition.

In the GAO review of the national program, it was concluded that $15.7 million would be required to update the interim systems to meet national requirements.

LORAN C

Mr. SABO. Does the FAA agree that the navigation system of the future is a hybrid space/earth system linking satellites with random routing technology such as LORAN C? If so what does the FAA foresee as the timetable for implementation of such a system? Is the FAA developing a comprehensive plan for transition to such a system?

[The information follows:]

The FAA agrees that a space/earth system is the navigation system of the future and that random routing will contribute to air traffic flow. However, there are major technical issues to be resolved before such a system is a reality. These issues include establishing reliability, availability and integrity requirements and then internationally standardizing technologies to meet these requirements. This is a lengthy process. It must be so to assure required safety in the system and to attain worldwide compatibility for navigation systems. A comprehensive plan and strategy is currently being developed to first set standards, then resolve a myriad of unanswered technical questions and finally to implement a safe, economically feasible, and reliable system for worldwide use. This essential process will require at least this decade to complete. This applies to en route navigation systems only; precision approaches to airports may never be possible with satellite navigation systems and a great deal of further research is required to make that determination.

GLOBAL POSITIONING SYSTEM

Mr. SABO. Does the FAA foresee the need for congressional action to obtain civil use of GPS? If so, what would be the nature of the legislation?

[The information follows:]

There are obvious benefits in providing approaches using GPS. Additional benefit would be realized without selective availability (SA). Accuracy is approximately 100 m with SA and approximately 15m without SA. Without SA, lower minima may be available. We understand the reason for SA, but with the changing world politics, there should be legislation to establish an annual requirement to review the requirement for SA.

OCEAN SATELLITE NAVIGATION

Mr. SABO. Some user groups have suggested initial ocean satellite navigation service by 1995. Given that there is no equipment to be replaced for ocean navigation and the satellites will be in place by

1992, is this unreasonable? If such a system is in the works what is your schedule for implementation and do you have a transition plan?

[The information follows:]

The DOD has stated that GPS will be operational in 1993 with 21 satellites in orbit. At that time, the FAA will be in a position to approve the use of GPS as an enroute supplemental radionavigation system. This will allow the use of GPS for navigation in the oceanic airspace if the aircraft has another approved navigation system. There is a possibility that by the end of 1995, GPS will be enhanced so that it can be the only readionavigation system needed on board an aircraft for oceanic flight. The FAA has an active program and a plan to permit use of GPS as soon as possible and to augment GPS so that its full potential can be obtained for civil use.

CORN PROJECT PROCUREMENT

Mr. DELAY. Earlier in these hearings we heard the General Accounting Office allege that the CORN project is an example of an inadequately justified general purpose procurement. Would you please outline the steps and process that you followed which led to the justification and authorization of this project?

[The information follows:]

FAA contests the characterization that CORN is inadequately justified. To the contrary, CORN has been through the complete review and approval route and has satisfied all regulatory and statutory requirements. FAA also disagrees that CORN is a "general purpose procurement." Rather the GAO uses this terminology in the sense of a general purpose hardware acquisition. CORN is not that at all; it entails the optional acquisition of ADP services.

Since its initiation in 1986 with approval from the FAA's Information Resources Management Executive Board, Project CORN has been carefully reviewed by the appropriate authorities within and outside the agency. In that context, the significant review and approval milestones were:

Designated as a major system acquisition, DOT Secretary, 9/20/87.
Key Decision Memo, DOT Deputy Secretary, 1/19/89.
Source Selection Plan, DOT Assistant Secretary for Administration, 1/27/89.
Solicitation package, Source Selection Board, FAA, 2/17/89.
Review by new FAA Administrator, 9/5/89.
Investigation of alleged anti-competitive practices, OIG, DOT, draft report as of 3/5/90.

CORN COST/BENEFITS

Mr. DELAY. The subcommittee heard about the cost of CORN. Would you highlight what the FAA sees as the benefits of such a large, and indeed expensive, system and to what extent will those costs be offset by the benefits.

[The information follows:]

CORN's expected benefits are many and varied. They include:

Improved employee productivity.
Capability and capacity when and as needed.
Ready access to new technology and attendant reduced unit costs.
Rationalized use via chargeback and cost recovery.
Compliance with GAO's previously identified deficiencies.
Economies of scale.
Single big procurement instead of many resource-consuming small ones in a catchup mode.
Integration of data and systems.
Viable backup and recovery.
Concentration on mandated functions and mission rather than on ADP.
Satisfaction of security regulations and rules.
Lesser reliance on aging ADP staff.
Standard architecture.

Many of these benefits are intangible or cannot be quantified in advance. However, those benefits lending themselves to quantification are estimated to represent $1.5 billion over the ten year contract life.

CORN is indeed a large undertaking, but its benefits more than compensate for its costs. With the possible exception of conversion, FAA and DOT's modes will only order services if they believe the value will at least equal the cost. The CORN contract, of course, consists almost entirely of optional (not mandatory) items to be ordered only by those who see value and benefits for the dollars spent.

ATC CONTRACT TOWER—WISCONSIN AIRPORT

Mr. OBEY. As you know, the authorities at Central Wisconsin Airport (CWA) are seeking a new radar facility and contract air traffic control (ATC) tower to address the problem of inadequate radar coverage and air traffic control in the entire central Wisconsin region. The airport authority has offered to assume the cost of construction of the ATC tower and is asking that FAA pay the cost of equipping and staffing the tower.

The current air traffic control facility for the area, which is located at Minneapolis, is unable to see aircraft operating below 4000 feet. That means that anytime an aircraft is taking off or landing at CWA or any of the five municipal airports nearby—Wausau, Marshfield, Stevens Point, Merrill, and Wisconsin Rapids—all other aircraft must clear the airspace. This is causing increasing delays and hampering the development of safe and efficient air service. What is needed, therefore, is to give controllers the ability to see aircraft down to the ground at CWA and the local municipal airports.

I understand that FAA is already proposing the installation of a new radar in the central Wisconsin region under the National Airspace Plan. Is this correct?

[The information follows:]

A long range radar is planned in the vicinity of Medford, Wisconsin. Funding will be included in the FY 1992 F&E budget request.

Mr. OBEY. I understand further that the proposed radar will be an air route surveillance radar-3 (ARSR-3). Is this true?

[The information follows:]

Yes.

Mr. OBEY. Is it true that the FAA is proposing that this new radar would be installed at the beginning of calendar year 1992? Does FAA have an exact date for the proposed installation of this radar?

[The information follows:]

The current schedule calls for the installation to be completed in February 1995.

Mr. OBEY. According to airport authorities at CWA, this radar, if properly sited and installed in conjunction with construction of a properly equipped ATC tower at CWA, will give controllers the ability to see aircraft down to the ground at CWA and the local municipal airports. I understand that the necessary equipment would include an AMS-100 Tower Display System.

Does FAA agree that such an agreement would provide the desired radar coverage? Will FAA work with the authorities at CWA regarding the selection of an appropriate site in central Wisconsin?

[The information follows:]

Yes, the new site will provide the desired radar coverage. We will coordinate with authorities at CWA regarding final selection of the new site.

ATC CONTRACT TOWER—WISCONSIN AIRPORT

Mr. OBEY. The FAA has indicated that any decision regarding a contract control tower for CWA would be based upon the number of operations at the airport and that the estimated 40,000 operations a year at CWA would be too low even for FAA to staff the tower by a contract with a private company. FAA also undertook a traffic study at CWA in February of this year and indicated that the volume of traffic was insufficient to meet FAA criteria for a contract control tower.

However, Chairman Oberstar of the Aviation Subcommittee has indicated that: "Since Central Wisconsin Airport is primarily a general aviation airport, it is, in my opinion, ridiculous for FAA to conduct a study in the winter when airplane traffic would be at its lowest point."

Chairman Oberstar also provided a listing of current traffic activity at the contract control towers around the nation.

[The information follows:]

Traffic activity of FAA contract towers [1]

[Total aircraft takeoffs and landings]

Location:	
Nashua, NH	128,501
Whiteman, CA	126,131
Lakeland, FL	106,157
Myrtle Beach, SC	93,118
Bellingham, WA	85,692
Cleveland, OH	78,700
Waukegan, IL	74,729
Topeka, KS	57,958
Laredo, TX	55,238
Owensboro, KY	54,391
Flagstaff, AZ	52,732
Farmington, NM	53,569
Enid, OK	47,275
Marion, IL	40,985
Cape Girardeau, MO	39,586
Paducah, KY	37,399
Hobbs, NM	33,146
Pendleton, OR	31,737
Ardmore, OK	28,684
Lewisburg, WV	23,558

[1] List provided by FAA.

Martha's Vineyard, MA.—Transitioned from FAA-staffed ATCT to FAA contract tower 8/89.

Hailey, ID (Sun Valley).—Opened as an FAA contract tower 12/89.

Mr. OBEY. Doesn't this list show that FAA has contracted to staff towers at airports with less than 40,000 operations?

[The information follows:]

The FAA Contract Tower Program objective is to contract out all of its level I VFR towers over the next 8-10 years that meet contract criteria, and/or where the benefits of such service exceed cost. However, as a result of congressional direction in past years' Appropriations language, the FAA has had to contract for air traffic control services at airports, with existing towers, that do not fully meet criteria.

Mr. OBEY. The authorities at CWA feel that the amount of traffic activity and the number of passengers served at CWA justifies construction of a contract control tower. Would FAA provide the committee with a full listing of both the number of takeoffs and landings and the number of emplanements and deplanements at each of the contract control towers around the country so that an accurate comparison can be made with CWA? Would FAA also provide details on the annual staffing costs at these towers?

Finally, would FAA provide the committee with an estimate for the cost of equipping and staffing a contract control tower with tower display of ARSR-3 radar data at CWA and an estimate of any additional cost that might be incurred in working with CWA regarding the precise site location for installation of the proposed radar?

[The information follows:]

Average costs to construct and equip an FAA ATCT is approximately $3.5 million. The average contract tower staffing costs are approximately $160,000. The ARSR-3 does not have an associated tower display. The estimated cost (if the remoting is technically feasible) is approximately $1.8 million, depending on site selection and any line-of-sight restrictions.

BIRMINGHAM, ALABAMA RUNWAY EXTENSION

Mr. BEVILL. The Birmingham Airport in Birmingham, Alabama has been designated in both the House and Senate Appropriations bills to receive priority consideration for FAA funding for the extension of their North/South runway, which is needed to enhance the safety and significantly increase the capacity of the airport. What is the status of the airport's request for funding for this project and do you expect funding will be available in fiscal year 1991?

[The information follows:]

The FAA has been briefed on this project by officials from Birmingham and is familiar with the airport's proposed expansion plans. The airport has developed a financial plan for these improvements which would require approximately $21M of discretionary funds spread over fiscal years FY 91 thru FY 94. We have not yet developed a FY 91 funding plan but this location will receive consideration for discretionary funds.

Mr. BEVILL. Are there any additional requirements the Birmingham Airport must meet in order to receive priority funding from the FAA for this project?

[The information follows:]

There are no specfic actions required by the FAA of the airport authority. The sponsor, however, may have to adjust project schedules if funding availability does not match proposed requirements. If that is the case, the FAA will work closely with the airport to minimize adverse impacts.

AAS CONTRACT DATA

[CLERK'S Note: The following contract document was originally printed in the fiscal year 1990 hearing record on pages 623—660 (Part 6). However, due to the large number of pages which were omitted at that time by the FAA, the complete document follows:]

PART I - SECTION G

CONTRACT ADMINISTRATION DATA

G.1 REQUEST FOR SHIPPING INSTRUCTIONS

a. This paragraph (a) is applicable to any Contract line item which provides for Contractor installation. If the Contractor has not been furnished the consignee's address or any other data needed to enable him to make shipment. the Contractor shall request such information from the Contracting Officer, at least 30 days before the date the Contractor expects to make shipment. The information needed will be furnished by the Contracting Officer or his/her designated representative by whatever means is most appropriate. FAA Form 4500-1 will be used for end-item shipment.

b. This paragraph (b) is applicable to any Contract line item which the Contractor will not install.

1. At least 30 days before the date the Contractor expects to make shipment of any unit (or portion thereof, when authorized), he shall request shipping instructions from the Contracting Officer. Each request for shipping instructions shall include:

a) The expected date of shipment;

b) The number of units to be shipped;

c) The Contract line item(s) involved;

d) The current Contract unit price of each Contract line item to be shipped;

e) Whether commercial bill of lading forms and procedures are desired to be used;

f) The weight and cube of the shipment;

g) A statement of any specialized carriage which may be necessary (e.g., whether padded van or flat bed is needed, if shipment is made by air, etc.).

2. Shipping instructions will be issued by the Transportation Officer on FAA Form 4500-1 entitled "Project Material Shipping Notice/Receiving Report".

c. If any Contract line item is to be delivered F.O.B., point of origin, the Transportation Officer will furnish Government bills of lading to the Contractor or authorize him to use commercial bill of lading forms and procedures as provided in paragraph (d) below.

d. If the transportation charges per shipment do not exceed $100.00, the Contractor may be authorized by the Transportation Officer to use commercial bill of lading forms and procedures in lieu of Government bill of lading. In such cases, transportation charges shall be included as a separate item on his invoice. A copy of the receipted freight bill shall be included with the invoice, except as otherwise provided in Part 47 of the Federal Acquisition Regulation.

e. Under paragraph (b) above, the Transportation Officer is the only person authorized to issue FAA Form 4500-1, unless the Contracting Officer specifically authorizes otherwise. No shipment pursuant to paragraph B shall be made by the Contractor, whether the F.O.B. is origin or destination unless and until FAA Form 4500-1 has been received. Failure of the Contractor to observe these requirements may delay payments of his invoice.

G.2 METHOD OF PAYMENT

a. Payments under this Contract will be made either by check or by wire transfer through the Treasury Financial Communication System at the option of the Government.

b. The Contractor shall forward the following information in writing to the paying office not later than 7 days after receipt of notice of award.

1. Full name (where practicable), title, phone number, and completed mailing address of responsible official(s), (i) to whom check payments are to be sent, and (ii) who may be contacted concerning the bank account information requested.

2. The following bank account information is requested to accomplish wire transfers:

   a) Name, address, and telegraphic abbreviation of the receiving financial institution.

   b) Receiving financial institution's 9-digit American Bankers Association (ABA) identifying number for routing transfer of funds. (provide this number only if the receiving financial institution has access to the Federal Reserve Communications System.)

   c) Recipient's name and account number at the receiving financial institution to be credited with the funds.

   d) If the receiving financial institution does not have access to the Federal Reserve Communications System, provide the name of the correspondent financial institution through which the receiving financial institution receives electronic funds transfer messages. If the correspondent financial institution is specified, also provide:

1) Address and telegraphic abbreviation of the correspondent financial institution.

2) The correspondent financial institution's 9-digit ABA identifying number for routing transfer of funds.

c. Any changes to the information furnished under paragraph (b) of this section shall be furnished to the paying office in writing at least 30 days before the effective date of the change. It is the Contractor's responsibility to furnish these changes promptly to avoid payments to erroneous addresses or bank accounts.

d. The document furnishing the information requested in paragraphs (b) and (c) must be dated and contain the signature, title and telephone number of the Contractor official authorized to provide it, as well as the Contractor's name and contract number.

G.3 PAYMENT

The Contractor shall submit a properly executed original and two (2) copies of Standard Form 1034 (or superceding issue) to the Federal Aviation Administration, Accounts Payable Branch (AAA-225), 800 Independence Avenue, S.W., Washington, D.C. 20591, which will make payment thereon.

G.4 OPTION EXERCISE

Should the Government elect to purchase option item B.5.2 it shall be exercised within 84 months after the date of Contract Award.

Should the Government elect to purchase option items B.12.XX and B.13 they shall be exercised with 84 months after the date of Contract Award.

Should the Government elect to purchase option items B.19 it shall be exercised within 12 months after the date of Contract Award.

Should the Government elect to purchase option items B.20.6 it shall be exercised within 84 months after the date of Contract Award.

Should the Government elect to purchase option items B.20.7 it shall be exercised within 84 months after the date of Contract Award.

Should the Government elect to purchase option items B.24.3 it shall be exercised within 84 months after the date of Contract Award.

Should the Government elect to purchase option items B.35.3 it shall be exercised within 84 months after the date of Contract Award.

Should the Government elect to purchase option items B.60 through B.63 they shall be exercised within 84 months after the date of Contract Award.

Should the Government elect to purchase option items B.107 through B.124 they shall be exercised within 46 months after the date of Contract Award.

Should the Government elect to purchase option items B.127, it shall be exercised within 72 months after Contract Award.

G.5 TRAVEL AND SUBSISTENCE REIMBURSEMENT

Cost for transportation, lodging, meals, and incidental expenses incurred by contractor personnel on official company business, shall be subject to FAR 31.205-45 and FPMR A-90 dated August 15, 1986.

G.6 CONTRACTING OFFICER (CO)

The Contracting Officer is Ms. Deborah Wilson, Telephone (202) 267-3650, ALG-303, 800 Independence Avenue, SW, Washington, D.C. 20591.

G.7 TECHNICAL OFFICER (TO)

The TO is as designated by the Contracting Officer.

G.7.a INPLANT ALTERNATE TECHNICAL OFFICER (ATO)

The inplant ATOs are as designated by the Contracting Officer.

G.8 QUALITY AND RELIABILITY OFFICER (QRO)

The QRO is as designated by the Contracting Officer.

G.9 INCREMENTAL FUNDING

The Contract line items contained in this Contract are incrementally funded in the amount $60,000,000. The incremental funding provides for $60,000,000 to cover the period of performance through October 31, 1988. The maximum liability of the Government hereunder is $60,000,000.

Until such time as the incrementally funded items are fully funded, the Limitation of Funds Clause shall apply and the Limitation of Costs Clause contained in section I, shall be ineffective. At such time as this Contract is fully funded, the Limitation of Cost Clause shall become fully effective and applicable to this Contract.

G.10 COST PLUS INCENTIVE FEE PROVISIONS

The following incentive features apply to the cost plus incentive fee line items of this Contract. The fee structure is a hybrid arrangement of a CPIF structure.

CHARACTERISTICS

Target Cost (TC)	$788,540,361	Including CSP
Target Fee (TF)	$ 50,097,581	(7% of TC) (Exclusive of CSP)
Maximum Fee (MxF)	$107,395,086	(15% of TC) (Exclusive of CSP)
Minimum Fee (MnF)	$ 0	(0%)
Share Ratio (SR) for Cost Performance	$ -	(75/25)

G.10.1 COST INCENTIVE

The actual amount of incentive fee earned by the Contractor shall be determined by comparing the actual cost of the cost reimbursement contract elements at contract completion with the target cost for those elements. The cost incentive fee payable under this contract shall be the target fee increased by 25 cents for every dollar that the allowable cost is less than the target cost or decreased by 25 cents for every dollar that the total allowable cost exceeds the target cost. In no event shall the incentive fee be greater than the statutory maximum.

G.11 FIXED PRICE INCENTIVE (FIRM TARGET)

The following incentive features apply to the fixed price incentive line items of this Contract. The structure is a hybrid arrangement of a FPI structure.

CHARACTERISTICS

Target Cost (TC)	$708,862,205 (Including CSP)
Target Profit	$ 58,476,732 (Exclusive of CSP)
Target Price	$767,338,937
Price Ceiling	$918,551,281 (130% of Target Cost)
Share Ratio (75/25)	$ -
Profit Adjustment Formula	$ -

G.11.1 FIXED PRICE INCENTIVE

These elements are negotiated at the outset. The price ceiling is the maximum that may be paid to the Contractor, except for any adjustment under the Contract clauses. When performance of each group identified in G.13 is completed, the final cost is negotiated, and the final price is established by applying the formula. When the final cost is less than the target cost, application of the formula results in a final profit greater than the target profit; conversely, when final cost is more than target cost, application of the formula results in a final profit less than the target profit, or even a net loss. If the final negotiated cost exceeds the price ceiling, the Contractor absorbs the difference as a loss.

G.12 ADVANCED AUTOMATION SYSTEM PAYMENT CRITERIA

a. Notwithstanding any other provision of this Contract, including but not limited to the Government Property clause and the Responsibility for Supplies clause, Government acceptance of or payment for any CLIN prior to completion of all Contract work and testing for such CLIN shall not lessen or eliminate any responsibility of the Contractor to complete such contract work or testing and shall not place risk of loss or damage for such CLIN on the Government; provided that the Contractor shall not be liable for loss of or damage to supplies caused by the negligence of officers, agents or employees of the Government acting within the scope of their employment.

b. If, during the course of installation of the Contractor's product in a Government facility, Type I, II or III problems are identified with that product, either by the Contractor or by the Government, those problems shall be resolved to the Government's satisfaction prior to the Contractor receiving permission to start any other installation of any other product in a Government facility under this Contract. Further, no additional payment shall be made to the Contractor under this Contract until said problems are resolved to the Government's satisfaction.

G.13 CONTRACT ACCOUNTING GROUPS

For administrative and billing purposes, the Contract is divided into the following groups:

GROUP 1: All CPIF Contract Line Items.
(B.1, B.4, B.6, B.8, B.10, B.14, B.15, B.16, B.17, B.18, B.20, and B.24)

GROUP 2: All FPLOE Contract Line Items.
(B.92, B.94, B.96, B.98, B.100, B.101, B.102, B.103, and B.104)

GROUP 3: Contract Line Item B.3.

GROUP 4: Contract Line Item B.2.

GROUP 5: Contract Line Item B.7

GROUP 6: Contract Line Item B.11.

GROUP 7: Contract Line Item B.5 and B.35.

For administrative and billing purposes, the Contractor shall establish separate accounts for each of the Contract Line Items in Groups 3 through 7. When performance of each Group is completed, the final cost is negotiated and the final price is established.

NOTE: All Contract Line Items identified as "options" or "to be negotiated at a later date" will be added into Groups at the appropriate time.

G.14 LIMITATION OF GOVERNMENT'S OBLIGATION FOR INCREMENTALLY FUNDED CLINS

a. Of the total price of the items the sum of $60,000,000 is presently available for payment and allotted to this contract. It is anticipated that from time to time additional funds will be allotted to this contract until the total price of these items is allotted.

b. The Contractor agrees to perform or have performed work on the items up to the point at which, in the event of termination of this contract pursuant to the clause entitled "Termination for the Convenience of the Government," the total amount payable by the Government (including amounts payable in respect of subcontracts and settlement costs) pursuant to paragraph (E) of the clause would, in the exercise of reasonable judgement by the Contractor, approximate the total amount at the time allotted to the contract. The Contractor will not be obligated to continue performance of the work beyond that point. The Government will not be obligated in any event to pay or reimburse the Contractor in excess of the amount from time to time allotted to the contract, regardless of anything to the contrary in the clause entitled "Termination for the Convenience of the Government."

c. It is contemplated that the funds presently available and to be allotted to this contract will cover the work to be performed as limited by the following funding profile:

FISCAL YEAR	AMOUNT ($M)
1988	$ 18.1
1989	$174.7
1990	$164.5
1991	$206.8
1992	$191.8
1993	$227.2
1994	$177.0
1995	$179.6
1996	$163.8
1997	$ 68.6
1998	$ 31.2
1999	$ 10.3
2000	$ 8.3

If funds allotted are considered by the contractor to be inadequate to cover the work to be performed until the above dates or agreed substitutes, the contractor will notify the Contracting Officer in writing when, within the next 30 days, the work will reach a point at which, in the event of termination of this contract pursuant to the clause entitled "Termination for the Convenience of the Government" (including amounts payable in respect of subcontracts and settlement costs), pursuant to paragraph (e) of the clause, will approximate 85 percent of the total amount then allotted to the contract. The notice will state (I) the estimated date when that point will be reached and (II) the estimated amount of additional funds require to continue performance to the above date or an agreed substitute date. The contractor will, 30 days prior to the above written date or agreed substitute date, advise the Contracting Officer in writing as to the estimated amount of additional funds which will be required for the timely performance of the contract for a further period as may be specified in the contract or as otherwise agreed to by the parties. If after such latter notification, additional funds are not allotted by the date above written, or by an agreed substitute date, the Contracting Officer will, upon written request of the contractor, terminate this contract on the date or date set forth in the request, whichever is later, pursuant to the provisions of the clause of this contract entitled "Termination for the Convenience of the Government."

d. When additional funds are allotted from tie to time for continued performance of the work under this contract, the parties will agree as to the applicable period of contract performance which will be covered by the funds. The provisions of (b) and (c) above will apply in like manner to the additional allotted funds and agreed substitute date, and the contract will be amended accordingly.

e. If the Contractor incurs additional costs or is delayed in the performance of the work under this contract solely by reason of failure of the Government to allot additional funds in the amounts sufficient for timely performance of this contract, and if additional funds are allotted, an equitable adjustment will be made in the price or prices (including appropriate target, billing, and ceiling prices where applicable), of the items or in the time of delivery or both. For purposes of this paragraph (e) "Failure of the Government to allot additional funds" shall refer only to failure of the Government to allot additional funds in accordance with the funding schedule set forth in paragraph (c), above. Failure to agree to any such equitable adjustment hereunder, will be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "disputes".

f. The Government may at any time prior to the termination and, with the consent of the contractor, after notice of the termination allot additional funds for this contract.

g. The provisions of this clause with respect to termination will not be deemed to limit the rights of the government under the clause entitled "Default". The provisions of this clause are limited to the work on an allotment of funds for the items set forth in (a) above. This clause will become inoperative upon the allotment of funds for the total price of the work except for rights and obligations then existing under this clause.

h. Nothing in this clause affects the right of the Government to terminate this contract pursuant to the clause of this contract entitled. "Termination".

G.15 AWARD FEE

The total award fee potentially available to the Contractor is divided into 11 increments as shown below. Each increment is allocated to a specific contract performance period. Each succeeding Evaluation Period begins at the end of the preceding Evaluation Period. The award fee payable for each Evaluation Period shall be paid upon Government determination of the percentage (0 to 100%) of the potential award fee available for that period which was earned by the Contractor.

Evaluation Period	Milestone(s)	Evaluation Period Ends MAC	Award Fee $M
1.	ACCC CDR Conference		
	a. Hardware CDR Conference	12	2
	b. System CDR Conference	18	4
2.	PAMRI Acceptance	26	8
3.	ISSS/SSCC-1 Acceptance	36	12
4.	Acceptances: TCCC/SSCC-2 ISSS Site 1, PAMRI Site 20	53	15
5.	TAAS/SSCC-3 Acceptance	59	10
6.	ACCC/SSCC-4 Acceptance	68	10
7.	Acceptances: TAAS Site 1, TCCC Site 1, ISSS Site 20	73	12
8.	ACCC Site 1 Acceptance	82	8
9.	TAAS Site 20 Acceptance	94	8
10.	ACCC Site 23 Acceptance	105	5
11.	TCCC Site 152 Acceptance	124	6
Total			$100 Million

G.15.1 PERFORMANCE EVALUATION PLAN

a. A Contractor Performance Evaluation Plan, upon which the determination of award fee shall be based (including the criteria to be considered and standards) is stated below in paragraphs G.15.1.1 through G.15.2.3.

b. The Performance Evaluation Plan may, consistent with the Contract, be changed unilaterally by the Government at any time during the Contract period of performance. Notification of such changes shall be provided by the Contracting Officer to the Contractor 30 calendar days prior to the start of the Evaluation Period to which the changes apply. Government revision of the Performance Evaluation Plan is not a change under the "Changes" clause nor does it entitle the Contractor to any change or adjustment in any other contract term or condition.

G.15.1.1 EVALUATION CRITERIA

The following criteria, listed in descending order of importance, shall be used to evaluate the Contractor's schedule management. Other criteria (additions, deletions, or modifications) may be developed during the contract term and included in a revision of the Performance Evaluation Plan by the Government.

G.15.1.1.1 SCHEDULE MANAGEMENT

a. Were installation tasks completed on schedule and installation milestone schedules met?

b. To what extend does the Contractor anticipate schedule conflicts and delays, provide timely notification to the Government, and take action to resolve such conflicts and delays in such a way as to minimize their impact on site installation schedules?

G.15.1.1.2 PERFORMANCE MANAGEMENT

a. Were the Technical Performance Measures achieved as specified?

b. Was a problem reporting and management system developed and maintained in an accurate and timely manner?

c. Did the Contractor anticipate design problems, provide timely notification to the Government and take timely and cost effective action to resolve the problems?

G.15.2 EVALUATION STANDARDS

Three standards, as defined below, will be used to determine the level of performance achieved by the Contractor for each of the evaluation criterion during an evaluation period. Definitions for each standard and the associated percentages are shown below.

G.15.2.1 EXCELLENT

The Contractor's performance met all of the Government's designated acceptance dates throughout the period. Work performed during the period was accomplished in a timely manner. Technical Performance Measures were all within tolerance. The discrepancies and slippages were reported in a timely manner and were minor in nature.

70 to 100 percent

G.15.2.2 SATISFACTORY

The Contractor' performance failed to meet some of the Government's designated acceptance dates for the Evaluation Period. Some Technical Performance Measures were outside of the Specifications.

30 to 69 percent

G.15.2.3 UNSATISFACTORY

The Contractor failed to meet most of the Government's designated acceptance dates for the Evaluation period. Most Technical Performance Measures were out of the Specifications.

0 to 29 percent

G.15.3 DETERMINATION OF AWARD FEE EARNED

a. The Government shall, at the conclusion of each specified Evaluation Period, evaluate the Contractor's performance for a determination of award fee earned in accordance with the Performance Evaluation Plan, and the Contractor shall be promptly advised (within 30 days following the conclusion of the evaluation period) in writing of this determination and the reasons for it. The Contractor may submit a self-evaluation of the performance for each Period to the Government. Although the basis for the determination of the fee shall be the evaluation by the Government, any self-evaluation which is received within 15 days after the end of the period being evaluated will be given appropriate consideration by the Fee Determining Official (FDO).

b. All determinations as to the amount of award fee earned (and any allocations of unearned fee to a subsequent Period or Periods) made by the FDO are binding on both parties and are not subject to appeal under the "Disputes" clause or to any board or court.

G.15.4 PAYMENT OF AWARD FEE

a. This contract will be changed by unilateral modification when the award fee, if any, has been determined by the FDO. The modification shall set forth the amount of award fee earned for the performance period evaluated. Upon receipt of the contract modification, the Contractor may submit a public voucher for the amount of award fee earned for the period evaluated.

15.5 TAR 1252.216-76 DISTRIBUTION OF AWARD FEE (APR 1984)

a. The total amount of award fee available under this contract is assigned to each Evaluation Period as shown in G.15.

b. After payment of 85% of the total potential award fee, the Government may withhold further payment of an award fee until a reserve is set aside in an amount that the Government considers necessary to protect its interests. This reserve shall not exceed 15 percent of the total potential award fee. (This reserve is in addition to any reserve provided for by the FAR 52.216-10 clause entitled "Incentive Fee.)

c. Notwithstanding any other provision of this contract, in the event of termination of the Contract for the convenience of the Government, either in whole or part, during any of the Evaluation Periods and before the completion of such Period, the Government may, but is not required to, award an award fee for work performed during that Evaluation Period, in which event the total amount available for an award fee for such Period shall be the appropriate available award fee set forth above, ratably adjusted as determined by the FDO to reflect the actual amount of contract effort performed during the Evaluation Period, excluding subcontract effort included in subcontractors' termination proposals.

d. Notwithstanding any other provisions of this contract, in the event of termination of this contract for default, the Contractor shall not be paid any additional award fee but may, subject to all rights of the Government, retain any award fee amounts previously paid.

e. Notwithstanding any other provision of this contract, in no event shall any combination of fee or profit exceed statutory maximums.

PART I - SECTION H

SPECIAL CONTRACT REQUIREMENTS

H.1 GOVERNMENT FURNISHED PROPERTY

a. The Government shall furnish the property listed in Attachment J-4 to the requirements of DOTPR 12-70, Supplement 1, entitled "Manual for Control of Property in Possession of Contractors," incorporated herein by reference. The property shall be returned at Government expense.

b. The Government hereby authorizes the transfer of all Government Furnished and Contractor Acquired Property from contract number DTFA01-84-C-00039 for use in the performance of this contract.

H.2 EQUIPMENT DELIVERY AND INSTALLATION

The contractor shall deliver, install, and checkout each system (ISSS, TAAS, ACCC, TCCC) and all supporting equipment at the sites specified in Section F in accordance with the requirements herein and the SOW and SLS. This type of installation will require the Contractor to perform the installation in accordance with the FAA-Contractor coordinated plans such as to have a minimum impact on operational air traffic services.

a. Notification to Sites - The Contractor shall notify the FAA site coordinator at each site as early as possible, but not later than twenty-one (21) days prior to his planned date for installation of each AAS System.

b. Notification of Shipment to Installation Sites - The Contractor shall notify the appropriate FAA site coordinator and the Contracting Officer when equipment or documentation will be shipped to the sites. The notification shall include the date of shipment, the Contract number, the description of equipment or documentation and quantities and the name of the carrier.

c. Site Preparation and Access to Site - Preparation of sites prior to the scheduled start of installation by the Contractor and access authorization to permit Contractor personnel to perform the required installation work will be the responsibility of the Government.

d. Notification of Site Availability - Notification of site availability and designation of a FAA Site Coordinator shall be communicated to the Contractor by the Contracting Officer and shall be confirmed in writing.

H.3 MEETINGS/CONFERENCES

Meetings shall be held as required to insure effective program management and efficient and effective resolution of problems throughout the life of the Contract. The typus and frequencies of these meetings shall include, as a minimum, those described in (a) and (b) below. At least 10 working days before any meeting, except for the monthly overview meeting, the Contractor shall notify the Contracting Officer and TO of the date, time and location of the meeting.

a. Post-Award Conference - Post-award conference shall be held at the Contractor's facility within 30 days after Contract award.

b. Monthly Overview Meetings - An overview meeting of Contractor and Government personnel shall be held monthly to review the status of all contractual efforts. The overview meetings shall be held monthly at the Contractor's facility, at the Contractor's Subcontractor facility, or other mutually agreed upon location. During software development and during hardware testing the meetings will be held at the FAATC, at the then current installation site, or at the Contractor's facility.

c. Government Monthly Program Management Board Review - A Prime Contractor review shall be held monthly at Government facilities to report on current contract status to the Advanced Automation Program Management Board.

d. CDR Conferences - The following CDR conferences shall be held at the Contractor's facility:

   1. ACCC CDR Conference:

      a) Hardware CDR Conference shall be held 12 months after Contract Award.

      b) System CDR Conference shall be held 18 months after Contract Award.

   2. TCCC CDR Conference shall be held 19 months after Contract Award.

H.4 SUBCONTRACTING REPORTS

a. The Contractor shall submit quarterly reports in order to allow the Government to determine the extent of compliance by the offeror with the subcontracting plan.

b. Reports shall be submitted on Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, and in accordance with the instructions on the forms.

c. One (1) copy shall be provided to the Contracting Officer, and one (1) copy shall be provided to the Procurement Management and Services Bran-h ALG-380 for administrative purposes.

H.5 SUBCONTRACTING PROGRAM FOR SMALL BUSINESS AND SMALL DISADVANTAGED BUSINESS

The Contractor's "Subcontracting Plan for Small Business and Small Disadvantaged Business Concerns", dated June 15, 1988, is hereby incorporated and made part of this Contract. Failure of the Contractor to comply in good faith with the above referenced plan incorporated herein shall be a material breach of the contract. The Contractor shall include a similar provision for material breach of Contract in any subcontract which requires provisions for Small Business and Small Disadvantaged Business Subcontracting.

H.6 COST/SCHEDULE CONTROL SYSTEMS

a. The Contractor shall establish, maintain, and use in the performance of this Contract Cost/Schedule Control Systems meeting DOD 7000.2, entitled "Performance Measurement for Selected Acquisitions". Prior to acceptance by the Contracting Officer and within 120 (Nor otherwise agreed to by the parties) calendar days after Contract award, the Contractor shall be prepared to demonstrate the operation of his systems to the Government to verify that the proposed systems meet the established criteria set forth above. As part of the demonstration, review, and acceptance procedure the Contractor shall furnish the Government a description of the Cost/Schedule Control Systems applicable to this Contract in such form and detail as indicated by the AFSCP/AFLCP 17305, NAVMAT P-5240, DARCOM-P 715-5, and DLAM 8315.2 Cost schedule Control Systems Criteria Joint Implementation Guide hereinafter referred to as the guide, or as required by the Contracting Officer. The Contractor agrees to provide access to all pertinent records, data, and plans as requested by representatives of the Government for the conduct of the review.

b. The description of the management systems accepted by the Contracting Officer, identified by title and date, shall be referenced in the Contract. Such systems shall be maintained and used by the Contractor in the performance of this Contract.

c. Contractor changes to the accepted systems shall be submitted to the Contracting Officer for review and approval. The Contracting Officer shall advise the Contractor of the acceptability of such changes within (60) days after receipt from the Contractor. When systems existing at time of Contract award do not comply with the criteria, adjustments necessary to assure compliance will be effected at no change in Contract cost or fee.

d. The Contractor agrees to provide all pertinent records and data requested by the Contracting Officer or his duly authorized representative for the purpose of permitting Government surveillance to insure continuing application of the accepted systems to this contract. Deviations from accepted systems discovered during Contract performance shall be corrected as directed by the Contracting Officer.

e. The Contractor shall require that each selected subcontractor, as mutually agreed to between the Government and the Contractor and as set forth in the schedule of this Contract, shall meet the Cost/Schedule Control Systems criteria set forth in the guide and provisions for demonstration, review, acceptance, and surveillance of subcontractors' systems. Such demonstration and review shall include Government participation and may, at the request of either the prime or the subcontractor, be performed by the Government.

f. The selected subcontractors that shall meet the C/SCS criteria are Raytheon Company and Computer Sciences Corporation (CSC). CSC has a Performance Measurement System which is validated for DODI 7000.10; however, CSC will meet the 7000.2 requirements for C/SCS reporting set forth herein.

g. If the Contractor or subcontractor is utilizing Cost/Schedule Control Systems which have been previously accepted, or is operating such systems under a current Memorandum of Understanding, the Contracting Officer may waive all or part of the provisions hereof concerning demonstration and review.

h. This contract recognizes IBM FSD's DCAS approved DODI 7000.2 Cost/Schedule Control System. The Contracting Officer will be notified of any changes to that system which are subsequently approved by DCAS. This contract further recognizes that for the IBM commercial equipment furnished, the Government is precluded from inspecting the books and records of the commercial division of IBM.

i. It is understood that subcontractors, other than those listed in paragraph (f) above, shall be compliant by submitting CSSR reports.

H.7 ORDER OF PRECEDENCE

In the event of any conflict among the contractual documents the following order of precedence applies:

a. The Contract Schedule (sections A through H)

b. General Provisions (section I)

c. Attachment J-1, Statement of Work and Attachment J-3, Contract Data Requirements List and Data Item Descriptions

d. Attachment J-2, Systems Level Specification

e. J-6, Transition Concepts and Requirements

f. Attachment J-4, Government Furnished Property, and J-5, Preliminary Contract Work Breakdown Structure.

9. Contractor B-Specs

H.8 "NOT USED"

H.9 COMPLIANCE WITH SMALL BUSINESS AND SMALL DISADVANTAGED BUSINESS SUBCONTRACTING PLAN

(This clause is applicable to any Contract which includes an approved Small Business and Small Disadvantaged Business Subcontracting Plan. This clause is not applicable to Contracts with small business concerns.)

a. The failure of the Contractor to comply with the approved Small Business and Small Disadvantaged Business Subcontracting Plan will be a material breach of this Contract. If such a breach occurs, the Contracting Officer may terminate this Contract pursuant to the Termination for Default Clause, reduce the Contract price, negotiate a revised subcontracting plan to correct deficiencies, or take such other measures as are deemed appropriate. In determining the proper remedy, the Contracting Officer shall consider (1) the reasons attributed to the failure to comply in good faith, (2) the Government's need for the Contract deliverables, and (3) the impact a proposed remedy has on existing small and disadvantaged subcontractor.

b. In connection with the administration of the Plan by the Contractor, the Contractor agrees to:

1. Maintain small and disadvantaged business source lists, guides, and other data identifying such vendors.

2. Maintain records on all subcontract solicitations over $10,000 indicating on each solicitation (i) whether small business was solicited, and if not, why not; (ii) whether small disadvantaged business was solicited, and if not, why not; and (iii) reasons for the failure of solicited small business or small disadvantaged business to receive the subcontract award.

3. Maintain records to support other outreach efforts, such as contracts with Minority and Small Business Trade Associations, etc.; contracts with business development organizations, etc.; attendance at small and minority business procurement conferences and trade affairs.

4. Maintain records to support internal activities to guide and encourage buyers, such as workshops, seminars, training programs, etc.; monitoring activities to evaluate compliance.

5. Maintain records to support award date (including name and address of subcontractor) which are required or may be required to be submitted on Standard Form subcontracting reports.

H.10 SUPPORT CONTRACTOR

The Government may contract with support Contractors for services to assist in technical reviews of the AAS Contractors' efforts and products under this contract. In such event the AAS Contractor will be notified by the Government. Employees of these support AAS Contractors may attend meetings between the AAS Contractor and the Government, observe and participate with Government personnel in function and performance tests, and have access to the AAS Contractor's facilities as related to any effort under this Contract; however, no support Contractor has the authority to issue directions to the AAS Contractor or to change the Contract.

Contractor	Contract #	Responsibility	Contact
MITRE Corporation 1820 Dolley Madison Blvd. McLean, Virginia	DTFA01-82-C-10003	General Technical Support	Mr. Michael Broderick 703-827-6000
Computer Technology Association 5670 S. Syracuse Circle Englewood, CO 80110	DTFA01-83-C-10561	Human Factors Engineering	Ms. Nina Swann 303-740-7026
Martin Marietta Aerospace 475 School Street, SW Washington, DC 20024	DTFA01-84-C-00017	Systems Engineering and Integration	Mr. Kenneth [illegible] 202-646-2260
Omar McCall & Associates 11325 Maryland Avenue Beltsville, MD 20750	DTFA01-84-Y-01022	General Technical	Mr. Mike Scalzo 301-937-7717 301-827-8031
RMS Technologies, INC. One Neshaminy Interplex Suite 306 Trevose, PA 19047	DTFAC3-83-C-00088	General Technical Support	Mr. Nelson DeGrandmais 609-484-4654
Logicon	Contact Martin Marietta for number	Training and IV&V	Contact Martin Mariet Representative
BTG	Contact Martin Marietta for number	Configuration Management	Contact Martin Mariet Representative
Concept Systems, Inc.	Contact RMS Technologies, Inc. for number	General Technical	

H.11 KEY PERSONNEL

The personnel listed below (or as specified in the Schedule of this contract) are considered essential to the work being performed hereunder. Prior to removing, replacing or diverting any of the specified individuals, the contractor shall furnish to the Contracting Officer a written comprehensive resume, in duplicate, on the qualification of such successor personnel prior to assignment of such personnel to perform under this contract. These successor personnel shall have equivalent or superior qualifications to those who are being removed, replaced or diverted. The personnel list below (or as specified in the Schedule of this contract) may be amended from time to time during the course of the contract to either add or delete personnel with notification to the Contracting Officer.

W.D. Carson, Jr.
R.O. Sogard
R.J. Kirchoff
J.R. Cantwell
D.H. Moore
M.S. Murphy
S.M. Corcoran
D.E. Zurofoss
L.M. Alexander
W.D. Bryden
E.L. Jenks
S.K. Jones
J.B. Vollmer
K.R. Clark
D.M. Fredrick
T.E. Roland
J.A. Scrivner
J.W. Rigterink
T.P. Trueman
K.P. Jordan
R.E. Quinnan
J.T. Keady
T.E. Payne

H.12 OPTION

The Government may require the delivery of option items (other than unpriced items), in the quantity and at the price set forth therein. The Contracting Officer may exercise any or all options, at any time within the period specified in section G.4 by giving written notice to the Contractor. Delivery of the items added by the exercise of an option shall continue immediately after, and shall meet the delivery schedule contained in section F of the Contract unless the parties otherwise agree.

H.13 DEFINITIONS

Commercially Available - the term "commercially available" as applied to an item of hardware shall mean "Automatic Data Processing Equipment" as described in FAR 31.001. The term Commercially available as applied to an item of software shall mean "currently available software" as described in FIRMR Section 201-2.001 (Page 2-13, Amendment 4, June, 1985). The term "Commercial Hardware" as applied to Repair, Restoration, and Supply Support, shall apply only to commercial central processing subsystems and their associated commercial peripherals. Specifically excluded are Local Communications Network (LCN), interface processors, and communications processors.

The Government acknowledges that the definition of "Commercial Hardware" as it applies to Repair, Restoration and Supply Support is relevant only with respect to pricing of maintenance services and that notwithstanding the above definition, the contractor is under no obligation to provide cost and pricing data on any of the commercial components contained therein.

Notwithstanding the above, subsequent to Contract award and prior to installation at the FAATC, the Contractor may offer, and the Government may accept, a model upgrade of the same computer family. The producer of such model upgrade shall:

1. Have offered that item for sale or lease;

2. Have sold or leased at least one of such an item, which shall be performing its intended design functions in an operational (as distinguished from research, test or development) capacity in a customer's facility;

3. Have established a bona-fide program for production of that item and the processing of changes and improvements to the items; a

4. Be able to demonstrate the existence of reliable sources of supply for spare parts for each hardware item.

Voice Switching Control System Contractors - The Voice Switching Control System (VSCS) Contractors are defined as those Contractors awarded the prototype development contracts of the Voice Switching Control System.

The VSCS Contractors are:

AT&T
Contract Number: DTFA01-87-C-00001

Harris Corporation
Contract Number: DTFA01-87-C-00002

H.14 CONTRACT SUPPORT SERVICES - ESTABLISHMENT OF A CONTRACT LIASON OFFICE

The Government has entered into a contract with CEXEC, Inc. for contract Support Services (CSS). Under the contract CEXEC is required to provide CSS to the Contracting Officer through the establishment by CEXEC of a Contract Liason Office (CLO) in the Contractor's plant. The CLO will be staffed for the duration of the Contract by a Contracting Officer's Administrative Representative (COAR) and a production Surveillance Representative (PSR). The COAR and the PSR will be provided by CEXEC.

No contracting officer authority has been delegated to CEXEC, the COAR or the PSR. The COAR and the PSR have no authority to change any of the terms of the Contract or to issue any direction, assignment of work or communication which would be a basis for any change in the Contract terms (including but not limited to the Contract delivery schedule or price) or which would affect the time or cost of performance of the Contract. If the Contractor believes that it has received any direction from the COAR or PSR which would be a basis for a change in any of the Contract terms, or would affect the time or cost of performance of the Contract, the Contractor shall not comply with the direction and shall notify the Contracting Officer immediately.

The COAR may attend negotiation sessions with the Contracting Officer, but has no authority to negotiate directly or indirectly with the Contractor.

The duties of the COAR in support of the Contracting Officer may include but not limited to the following:

- Providing representative support to the Contracting Officer.
- Participating in postaward conferences.
- Reviewing the contractor's requests for payment for compliance with prescribed formats.
- Expediting actions for the Contracting Officer and the contractor.
- Reviewing proposed subcontracts for the Contracting Officer's consent.
- Assuring contractor compliance with subcontracting plans as reported on SF294 and SF295.
- Ensuring submission of required deliverables.
- Reviewing and evaluating the contractor's proposals and providing comments.
- Assisting the contractor in obtaining contract interpretation from the Contracting Officer.

The COAR will not provide assistance for the following items set forth in Part 42.302 of the FAR:

1) Review the contractor's compensation structure.

5) Negotiate forward pricing rate agreements.

6) Negotiate advance agreements applicable to treatment of cost under contracts currently assigned for administration.

7) Determine the allowability of costs suspended or disapproved as required (see subpart 42.8); direct the suspension or disapproval of costs when there is reason to believe they should be suspended or disapproved; and approve final vouchers.

16) Monitor the contractor's financial condition (through review of financial records) and advise the contracting officer when it jeopardizes contract performance.

34) Monitor contractor industrial labor relations matters under the contract; apprise the contracting officer, and if designated by the agency, the cognizant labor relations advisor of actual or potential labor disputes; and coordinate the removal of urgently required material from the

strikebound contractor's plant upon instruction from and authorization of the Contracting Officer.

(e) Review, approve or disapprove, and maintain surveillance of the contractor's purchasing system.

The duties of the PSR may include but are not limited to the following:

- Providing production surveillance through follow-on plant visits. For commercial items, such visits shall be in accordance with clause E.6 set forth elsewhere in this contract.

From time to time the Contracting Officer will require CEXEC to provide other services. In all cases, the Contracting Officer will notify the contractor in writing 30 days prior to the start of the specific additional duties the COAR and the PSR are required to perform.

Unless specified otherwise by the Contracting Officer, the COAR and the PSR shall be provided access to all information pertinent to the Contract to which the Government has a right of access.

The contractor shall provide office space for the CLO including furniture, file cabinets, local telephone service, internal mail service, copying service and parking to the extent available.

MONITOR AND TECHNICAL SUPPORT

H.15 SYSTEM ENGINEERING AND INTEGRATION CONTRACTOR RELATIONSHIP

a. The Contractor shall enter into a Liaison Agreement (The "Agreement") with the FAA's System Engineering and Integration (SEI) Contractor, Martin Marietta Aerospace, and shall comply with the terms of the Agreement for the duration of this Contract. The SEI Contractor shall not, by execution of the Agreement, be considered as a subcontractor for the purposes of this Contract.

b. The Agreement shall facilitate the exchange of data and information between the SEI Contractor and the Contractor as necessary for the successful integration and implementation of the NAS Plan.

c. As a minimum, the Agreement shall provide for the following:

1. As requested by the SEI Contractor, the Contractor shall provide the SEI Contractor with all technical data and management information applicable to the Contract effort, including but not limited to design data, baseline specifications, interface control drawings, acceptance test procedures and reports, and information relative to the control and any physical, functional or electrical interface between equipment provided under this Contract and other NAS Plan equipment, and cost and schedule information.

2. Prior to or concurrent with its submittal to the Government, the Contractor shall provide to the SEI Contractor a copy of each Engineering Change Proposal (ECP) and Value Engineering Change Proposal (VECP), plus a statement concerning the details of any known impact of the ECP or VECP on the SEI Contractor's Configuration Management Plan and any available information regarding the Contractor's projected and actual costs and schedule that is necessary for the SEI Contractor to evaluate the ECP or VECP.

3. Prior to submittal to the Government, the Contractor shall coordinate each proposed Contract specification change, deviation and waiver with the SEI Contractor. The Contractor shall provide to the SEI Contractor any available information regarding the Contractor's actual and projected costs and schedule that is necessary for the SEI Contractor to evaluate the proposed specification change, deviation or waiver. If the SEI Contractor agrees with the proposed change, deviation or waiver, coordinated comments by the Contractor and the SEI Contractor on the proposed action shall be provided to the Government. Otherwise, the Contractor shall provide separate comments to the Government.

4. The Contractor shall promptly disclose to the SEI Contractor all interface problems known to the Contractor which, if unresolved, would prevent successful integration and implementation of the Contract effort with other systems or subsystems of the NAS Plan. If an interface problem is proposed to be resolved by a change in the Contract specifications, the Contractor shall do so in conjunction with an ECP or VECP.

5. Unless restricted by the Government, the SEI Contractor shall be permitted to attend all meetings between the Contractor and the Government.

6. As may be necessary to accomplish the purposes of the Agreement, representatives of the Contractor shall meet from time to time at the Contractor's facility with the SEI Contractor, and the SEI Contractor shall have reasonable access to the Contractor's facilities.

7. The SEI Contractor shall be permitted to monitor all testing by the Contractor in connection with this Contract which the Government has the right to witness.

8. In accordance with Paragraph (d) of this Article, the SEI Contractor and the Contractor shall agree on the procedure for the proper protection of proprietary information owned by the Contractor and disclosed to the SEI Contractor, and of proprietary information owned by other NAS Plan Contractors and disclosed to the Contractor.

d. The Contractor may receive proprietary information owned by other NAS Plan Contractors from the SEI Contractor or the Government. Except with the prior written permission of the owner of the proprietary information, the

Contractor shall not release, use or disclose, in whole or part, proprietary information owned by another person. Neither this Contract nor the Agreement shall affect the right of the Government, the Contractor, the Contractor's subcontractors, the SEI Contractor, the SEI Contractor's subcontractors, or any other NAS Plan Contractor to use proprietary information if such information is lawfully obtained on an unrestricted basis from any source. In addition, neither this Contract nor the Agreement shall be the basis for any liability on the part of the Government for the use, release or disclosure, by the SEI Contractor of any proprietary information owned by the Contractor.

The Contractor agrees that it shall use proprietary information owned by others, whether provided by the Government, the SEI Contractor or any other Contractor or subcontractor, solely for the performance of this Contract. This provision, however, shall not affect the right of the Contractor or any of its subcontractors to use such proprietary information for other purposes if the information is lawfully obtained on an unrestricted basis from any source.

e. The Contractor shall provide the Contracting Officer with one copy of the Agreement entered into with the SEI Contractor and any Amendments thereto.

f. The Contractor shall use its best efforts to include the requirements of this Article in its subcontracts in excess of $100,000.

g. Nothing in this Contract or in the Agreement shall be deemed to be a basis for the alteration of, deviation from or failure to comply with, the terms and provisions of this Contract. In the event of a conflict between any of the terms and provisions of this Contract and the Agreement, the terms and provisions of this Contract shall control with respect to the parties to this Contract.

h. Costs incurred by the Contractor in complying with the Agreement shall be charged to this Contract. (H.15 (h) does not apply to the Fixed Price portion of this Contract)

H.16 REQUIRED FUNDING FOR CONTRACT LINE ITEMS

It is anticipated that for the fiscal years listed below the funding for the Contract line items in the following amounts is required:

FISCAL YEAR	F&E CLIN AMOUNTS ($M)	OPS CLIN. AMOUNTS ($M)
1988	$ 18.1	$ 0.0
1989	$174.7	$ 0.1
1990	$164.5	$ 1.0
1991	$206.8	$ 3.5
1992	$191.8	$ 9.4
1993	$227.2	$ 21.6
1994	$177.0	$ 31.1
1995	$179.6	$146.9
1996	$143.8	$147.8
1997	$ 68.6	$206.2
1998	$ 31.2	$227.1
1999	$ 10.5	$247.2
2000	$ 8.3	$170.2
2001	$ 5.2	$161.1

H.17 SUBCONTRACTS

The Contractor is authorized to enter into subcontracts in excess of $1,000,000 with the following:

SUBCONTRACTOR	SUBCONTRACT (DESCRIPTION)
RAYTHEON COMPANY	COMMON CONSOLE HARDWARE
COMPUTER SCIENCES CORPORATION	SOFTWARE DEVELOPMENT
VITRO CORPORATION	ENGINEERING SERVICES
FORMATION, INC.	PAMRI HARDWARE

H.18 POINT OF CONTACT FOR MAINTENANCE

a. A point of contact for maintenance shall be furnished by the Contractor to the Contracting Officer's Technical Representative. This information shall include the name, title, address, and telephone number of the Contractor's maintenance personnel for each site.

b. The Government shall provide a point of contact during the periods of maintenance coverage ordered to enable the Contractor to notify the Government that the system or component has been returned to the Government in good operating condition.

H.19 REPLACEMENT PARTS

a. The Contractor guarantees to provide replacement parts and to certify that they will be available for the lifetime of the Advanced Automation System as defined in H.28.

b. In addition, the Contractor guarantees to provide for each computer system and feature under this Contract, for the lifetime of the AAS as defined in H.28, any data not generated in the performance of this Contract, but necessary for the Government to secure the manufacture of replacement parts elsewhere, if such replacement parts are not available from the Contractor. Such data shall be furnished as negotiated between the parties at the time and in the event such data is requested by the government.

c. Prior to the completion of the Contract, the Contractor shall advise the Government in writing of the known or anticipated date when replacement parts for the machine and features delivered under this Contract will no longer be available from the Contractor.

H.20 RATES FOR LESS THAN ONE MONTH AND ONE HOUR

Charges for maintenance for fractions of a calendar month shall be computed at the rate of 1/30th of the basic monthly maintenance charge for each calendar day of the maintenance. Charges for maintenance for fractions of an hour shall be computed at the rate of 1/4 of the hourly rate for each 1/4 of an hour or part thereof.

H.21 NOT USED

H.22 SUBSTITUTIONS AND ADDITIONS

a. In the event the contractor or its subcontractor announces newer commercial components that can be substituted for items listed in Section B, the Contractor may propose, in accordance with Clause H.35, Technology Upgrade (Evolution), said items for Contract substitution after the new item is announced. In the event items in Section B are no longer generally available, the contractor or its subcontractor reserves the right to substitute commercial components provided the functionality of the substitute product is equal to or greater than the functionality of the product for which the substitute product is offered and that the price for the substitute product is no greater than the price of the product for which the substitute is offered. For purposes of this clause, functionality is defined as the capability of the substitute product to meet or exceed the official IBM published specifications for the product for which the substitute product is offered. The contractor will provide the Government with prompt notice of any such proposal substitution.

b. In addition to the above, the Government may replace any component, as defined in MIL-STD-280, ordered under this Contract or add new components whether or not substituted or added equipment is obtained from or manufactured by the Contractor or any of its subcontractors.

c. The Government may require interface information regarding the specifications and performance characteristics of the Contractor's components in order to install substitute or additional equipment not manufactured by the Contractor. Such interface information on commercial components will be of the type which is generally available to the public and shall be provided to the Government upon request.

d. Government initiated substitutions and additions of equipment not manufactured by the Contractor or its subcontractor shall be subject to the following:

  1. The government shall be responsible for damages caused to the Advanced automation Systems accepted by the Government provided the damage results from the use of such components.

  2. The Contractor shall not be held responsible for defects or performance degradation in software if such defects or performance degradation are caused by or result from the use of such components.

  3. The Contractor shall not be liable for any defect or performance degradation of its equipment caused by such component.

e. It is agreed and understood that in the event that the Government elects to replace any component ordered under this contract or add new components, either of which are not obtained from the contractor or any of its subcontractors, that the contractor assumes no responsibility for this equipment in the event that there is an impact to overall system performance. Further, to the extent that this equipment is not supplied by or manufactured by the contractor or any of its subcontractors, the contractor is relieved of the responsibility for maintenance and replacement parts for said equipment.

H.23 MAINTENANCE

a. Responsibilities of the Government

  1. Government personnel shall neither perform hardware maintenance nor attempt repairs to equipment or software while the system is being maintained by the Contractor; however, Government personnel may participate in a Contractor specified maintenance plan whereby the Contractor provides technical direction and Government personnel may perform simple tasks, such as replacing plug-mounted equipment. Plug-mounted equipment is any ADPE that can be disconnected so that an identical piece of ADPE can be connected to replace it.

  2. The Government shall provide time for Contractor sponsored modifications within a reasonable period after being notified by the Contractor that the modification is ready to be made.

  3. Subject to security regulations, the Government shall provide the Contractor access to the system to facilitate prompt repair. During this time, the Government may use those operable units where such use

does not interfere with the efforts to restore the failed unit/subsystem to operation or interfere with the operational system.

4. The Government shall provide the Contractor local administrative guidelines on a site-by-site basis.

b. Responsibilities of the Contractor

1. While the Advanced Automation System is being maintained by the Contractor all supplies, parts, tools, and test equipment required for maintenance of the system shall be provided by the Contractor.

2. The Contractor shall assume strict liability for the implementation of any maintenance plan, including participation of Government personnel under the technical direction of the Contractor, other than willful misconduct of a Government employee.

3. The Contractor shall conduct his maintenance activities in conformance with the local administrative guidelines.

c. Maintenance Charges

1. The maintenance prices include the cost of labor, parts, preventive maintenance, and transportation. Should it become necessary for the Contractor to send the equipment to its facility for repair or maintenance, the Contractor shall be responsible for the equipment from the time it leaves the Government site until it is reinstalled at the Government location in proper operating condition. Maintenance service shall not include electrical work external to Contractor furnished equipment, painting or refinishing, and adding or removing accessories, attachments or other devices. Only new standard parts of equal quality shall be used for repair.

2. Maintenance prices shall include all toll charges associated with the use of a telephone to assist in the repair of malfunctioned components.

H.24 CLASSIFICATION OF ADVANCED AUTOMATION SYSTEM PROBLEMS

Problems found in the process of test, installation, inspection, acceptance, and operational use of the FAA Advanced Automation System (AAS) component and each operational site AAS component shall be classified and used as a basis for subsequent site deployment of other components in accordance with this clause.

This problem classification method is in addition to that specified in and required by FAA Orders 1100.134A and 1100.145A; this method provides for identification of problems.

a. Problem Classification

Supported as required by Government and Contractor technical personnel, the Government COTR and the Contractor's program Manager shall on a continuing basis, promptly review and classify all AAS problems into one of the three types as set forth below. In addition, as part of the classification process, the Government COTR and the Contractor's Program Manager shall decide whether the Government or the Contractor is responsible for correction of each Type I, Type II and Type III problem and, for all Types of problems, how and when the problem will be corrected.

1. Type I - CRITICAL - MISSION PERFORMANCE

   A Type I problem is defined as an AAS problem that affects the performance of a critical function of the operational ATC system or results in a degradation of AAS reliability and availability below requirements and which the Contractor has the responsibility to correct.

2. Type II - CRITICAL - SUPPORT SYSTEM PERFORMANCE

   A Type II problem is defined as an AAS problem which does not preclude the primary mission objective of controlling aircraft but has an unsatisfactory impact on a key support function.

3. Type III - NON-CRITICAL

   A Type III problem is a problem which involves a non-critical operational function or a non-operational system function or support capability of the AAS.

Any disagreement between the Government COTR and the Contractor's Program Manager regarding classification of a problem as to Type, the responsibility for correction of a problem or how or when a problem will be corrected shall be referred to the Contracting Officer whose decision shall be final, subject to the right of the Contractor to appeal such decision in accordance with the "Disputes" clause of this Contract.

b. Problem Resolutions

1. Type I - All problems designated Type I must be resolved within ten working days after problem classification or subsequent deliveries shall be postponed until the problem is resolved in accordance with the provisions of this clause. Those AAS components already installed at FAA sites shall also have type I problems corrected by the Contractor.

2. Type II - AAS components may be delivered to the field with Type II problems. Type II problems must be resolved in accordance with the provisions of this clause prior to the initiation of any on-site test activities which are dependent on or which may be affected by the support function with the problem.

3. Type III - Type III problems can exist during site system testing. However, system acceptance at the site will be contingent on resolution of Type III problems in accordance with the provisions of this clause.

H.25 MAINTENANCE AND REPAIR SERVICES

During the life of the Advanced Automation System, as defined in H.28, the Government may elect to procure option items B.35, B.39, B.43, B.51, B.63, and B.106. The Contractor agrees to commit his resources to provide these services to the Government in a timely manner and at the price specified in this contract or, if the Government so elects at the time of option exercise, at a price equivalent to the then current price which shall then prevail for the remainder of the contract.

H.26 NOT USED

H.27 SECURITY CLEARANCES

a. General
The Contractor shall comply with all Department of Transportation (DOT) and Federal Aviation Administration (FAA) orders, directives, and supplements relating to security.

b. Personnel Suitability
The Contractor's employees performing work under this contract shall meet the same suitability requirements as Federal employees performing similar tasks. Suitability requirements must be designated in terms of position sensitivity. Accordingly, all individuals will be screened to a level that is commensurate with the responsibilities of the following positions:

1. Critical Sensitive (CS) - Positions involving major responsibility for the direction, planning, design, testing, maintenance, operation, monitoring and/or management of system hardware and software. The investigative requirement is a Background Investigation (BI).

2. Non-Critical Sensitive (NCS) - Responsibility for system design, operations, testing, maintenance and/or monitoring that is carried out under technical review of higher authority at the Critical-Sensitive level, to insure the integrity of the system. The investigative requirement is a Limited Background Investigation (LBI).

3. Non-Sensitive (NS) - Includes all positions not falling into one of the above sensitive levels. The investigative requirement is a National Agency Check and Inquiry (NACI).

If as a result of the personnel security investigation, or any other matter brought to the attention of the Government, a Contractor employee does not meet these requirements, the Contractor will be advised in writing by the Contracting Officer and access to FAA facilities will be denied or withdrawn for that Contractor employee and the Contractor shall not use, or shall promptly cease using, such employee for work under the Contract.

Waivers or exceptions to these requirements may be approved only by the Contracting Officer after coordination with the Civil Aviation Security Division (ACS-300).

Prior to, or upon the first visit by a Contractor employee to an FAA facility, the Contractor shall provide to the Contracting Officer or the Contracting Officer's Technical Representative (COTR), the following completed (typed) forms or evidence of an equivalent previous investigation:

1. Personnel Investigations Questionnaire, standard Form Number 86 (SF-86): Original and 2 copies.
2. National Agency Check Data for Nonsensitive or Noncritical-Sensitive Position, Standard Form Number 85-A (SF-85-A): Original.
3. Applicant Fingerprint Card, Federal Document Number 258 (FD-258): Original.

Evidence of Previous investigations that will be accepted include:

1. A security clearance presently in effect that has been issued by the Federal Government, E.G., DISCO.
2. Previously issued security clearance, which was administratively terminated without prejudice less than twelve months ago.
3. A previously conducted NACI or higher level investigation that was conducted for Federal employment that ended less than twelve months ago. At its sole discretion, the Government may require a current NACI regardless of previous investigations or clearances.

c. Protection Of National Security Information
Performance of this Contract will require access to classified National Security Information by the Contractor and its employees at some FAA facilities.

Contract performance involving classified information is restricted to those FAA facilities designated in writing by the Contracting Officer after coordination with the Civil Aviation Security Division (ACS-300).

The Contractor shall safeguard all classified material and shall provide and maintain a system of security controls within its organization in accordance with the requirements of: (i) The Department of Defense Security Agreement (DD Form 441), (ii) The Industrial Security Manual

(ISM) (attachment to DD Form 441), and (iii) any future revisions or changes to the ISM.

The Contracting Officer will furnish complete classification and security guidance for the Contractor by issuing an individual "DOD Contract Security Classification Specification" (DD Form 254) for each FAA facility at which access to classified information will be required for Contract performance.

d. Security Forms

Forms SF-85-A, SF-86, and FD-258 (required for suitability) are availability from the Contracting Officer or the Contracting Officer's Technical Representative. Other forms prescribed for use in the DOD Industrial Security Program can be obtained from the cognizant DIS Security Office.

e. Personnel Security Clearances

The Director, Defense Industrial Security Clearance Office (DISCO), Defense Investigative Service (DIS), Columbus, Ohio 43216, is responsible for processing and granting all industrial personnel security clearances required by the Contract. The granting of Personnel Security Clearances will be governed by the policies and procedures established by, and in accordance with, Department of Defense Directive 5220.22, Department of Defense Industrial Security Program.

f. Adverse Information

The Contractor shall notify DISCO as set forth in the requirements of Department of Defense Directive 5220.22M, paragraph 6B.1, entitled Adverse Information, whenever a cleared employee is involved in a reportable incident.

g. Employee Termination

The Contractor shall notify the Contracting Officer immediately whenever an employee performing work under this Contract terminates employment. The Contractor will be responsible for returning, or ensuring that the employee returns, all FAA-issued contractor/employee identification and all other FAA property.

H.28 LIFETIME OF THE ADVANCED AUTOMATION SYSTEM

H.28.a Period of Performance of the Advanced Automation System Contract

The period of performance of this Contract for the Advanced Automation System shall extend from Contract Award until the year 2000 or one (1) year after the ORD of the last TCCC, whichever is later. The Period of Performance above shall also apply with respect to the availability of replacement parts as described in Clause H.19 appearing elsewhere.

H.28.b Systems Life of the Advanced Automation System

For the purposes of Life Cycle Costing, the Systems Life of the Advanced Automation System shall extend from Contract Award until the year 2014.

H.29 NOT USED

H.30 (TAR 1252.222-72) STRIKES OR PICKETING AFFECTING ACCESS TO FAA FACILITY (APR 1984)

If the Contracting Officer notifies the Contractor in writing that a strike or picketing:

a. Is directed at the Contractor or any subcontractor or any employee of either, and

b. impedes or threatens to impede access by any person to the DOT facility or facilities where the site(s) of the work is (are) located, the Contractor shall take all appropriate action to end such strike or picketing, including, if necessary, the filing of a charge of unfair labor practice with the National Labor Relations Board or the utilization of any other available judicial or administrative remedies.

H.31 (TAR 1252.223-71) ACCIDENT AND FIRE REPORTING (APR 1984)

a. The Contractor shall report to the Contracting Officer any accident or fire occurring at the site of the work which causes:

1. A fatality or as much as one lost workday on the part of any employee of the Contractor or any subcontractor at any tier.
2. Damage of $1,000 or more to Federal property either real or personal;
3. Damage to Contractor or subcontractor owned or leased motor vehicles or mobile equipment;

4. Damage for which a Contract time extension may be requested.

b. Accident and fire reports required by paragraph (a) above shall be accomplished by the following means:

  1. Accidents or fires resulting in a death, hospitalization of five or more persons, or destruction of Federal property (either real or personal) the total value of which is estimated at $100,000 or more, shall be reported immediately by telephone to the Contracting Officer. Such notification shall include all known facts as to the extent of injury and damage and as to the cause of the accident or fire.

  2. Other accident and fire reports required by paragraph (a) above may be reported by the Contractor using a state, private insurance carrier, or Contractor accident report form which provided for the statement of: (i) the extend of injury; and (ii) the damage and cause of the accident or fire.

c. The Contractor shall assure compliance by subcontractors at all tiers with the requirements of this clause.

H.32 (TAR 1252.242-72) DISSEMINATION OF CONTRACT INFORMATION (APR 1984)

The Contractor shall not publish, permit to be published, or distribute for public consumption any information, oral or written, concerning the results or conclusions made pursuant to the performance of this Contract, without the prior written consent of the Contracting Officer. (Two copies of any material proposed to be published or distributed shall be submitted to the Contracting Officer.).

H.33 CLARIFICATIONS

a. The FAR 51.249-2 clause entitled "Termination for Convenience of the Government (Fixed Price)" applies to contract line items priced on a fixed price basis, and the language of that clause is clarified as follows:

  1. In paragraph (e) of the clause, "the total contract price" means the total price for all fixed price line items, including any fixed price line items the option for which had been exercised by the Government prior to the termination.

  2. In paragraph (e) of the clause, "the amount of payments previously made" means the total amount of payments previously made for fixed price line items.

  3. In paragraph (e) of the clause, "the contract price of work not terminated" means the total price for all fixed price line items not terminated for convenience, including any fixed price, not-terminated

line items the option for which had been exercised by the Government prior to the termination.

. In paragraph (k) of the clause, "the continued portion of the contract" means all fixed price line items (including optional fixed price line items previously exercised) which were not terminated for convenience.

b. The FAR 52.249-6 clause entitled "Termination (Cost Reimbursement)" applies to Contract line items priced on a cost reimbursement basis, and the language of that clause is clarified as follows:

1. In paragraph (g) (4) (i) of the clause, "work contemplated under the contract" means work contemplated under the Contract for the cost reimbursement line items, including any cost reimbursement options exercised by the Government prior to the termination.

2. In paragraph (g) (r) (ii) of the clause, "required by the contract" means required by the Contract provisions relating to cost reimbursement line items, including any cost reimbursement options exercised by the Government prior to the termination.

c. The FAR 52.249-8 clause entitled "Default (Fixed Price Supply and Service)" applies to Contract line items priced on a fixed price basis, and the language of that clause is clarified as follows:

1. The words "this contract" and "the contract" as used in paragraphs (a) (1) (iii), (c) and (e) of the clause mean the fixed price portion of the Contract.

d. The FAR 52.216-10 clause entitled "Incentive Fee" applies to contract line items priced on a cost reimbursement basis, and the language of that clause is clarified as follows:

1. In paragraph (e) (3) of the clause, "this contract" means the cost reimbursement portion of this Contract.

H.34 OPTION FOR INCREASED QUANTITY - SEPARATELY PRICED LINE ITEM (APR 1984)

The Government may require the delivery or performance of the numbered line item, identified in the Schedule as an option item, in the quantity and at the price stated in the Schedule. The Contracting Officer may exercise the option by written notice to the Contractor within the period specified in the Schedule. Delivery of added items shall continue at the same rate that like items are called for under the Contract.

H.35 TECHNOLOGY UPGRADE (EVOLUTION)

a. OVERVIEW

The Air Traffic Control (ATC) system environment is continually evolving. This system uses a complex of ground equipment, airborne equipment, personnel, communications, navigational aids, displays, radar, computers and sophisticated software. In the foreseeable future, significant increases in the volume of air traffic activity are indicated for both domestic and international air routes although the greatest growth is expected in general aviation.

The AAS system design is expected to have a 20 to 30 years system life and because of the significant increase in the volume of air traffic activity during this time frame the continuing evolution in technology, it is essential that the system be able to evolve as the technology becomes available. Government and industry experience in the last decade has shown that cost-effective computing, from a total life-cycle viewpoint, is best achieved by a well defined capacity management program that permits new technology upgrades as demand increases or as new hardware technology upgrades as demand increases or as new hardware technology becomes available. The ability to continuously exchange, upgrade, modify or add new features to equipment and software in response to increased air traffic activity and/or new advanced in computational technology and methodology is essential.

The Engineering Change clause will be used as described in Section H.35(b) to permit the Air Traffic Control environment to continuously evolve with new technology as it becomes available. When used in the context of this solicitation, engineering changes are understood to include the following: Modification, upgrade or replacement of any subsystem(s), device(s), machine(s), components (e.g. controller(s), printer(s), tape drive(s), storage system(s), console display(s), interface adapter(s), CPU(s), and software module(s) as well as the internal modification of system hardware software or microprogramming components to improve performance or reliability, increase speed or capacity, reduce space or power requirements, improve the use of new, more modern technology or methodology or to include any other change(s) which may be beneficial to the Government.

b. ENGINEERING CHANGES

1. After contract award, the Government may solicit, and the Contractor is encouraged to propose independently, engineering changes to the equipment, software specifications, or other requirements of this contract. These changes may be proposed to save money, to improve performance, to save energy, or to satisfy increased data processing requirements. However, if proposed changes relating to improved performance are necessary to meet increased data processing requirements of the user, those requirements shall not exceed the contract requirements by more than 25%. If the proposed changes are

acceptable to both parties, the Contractor shall submit a price change proposal to the Government for evaluation. Those proposed engineering changes that are acceptable to the Government will be processed as modifications to the Contract.

2. This H.39 (b) applies only to those proposed changes identified by the Contractor as a proposal submitted pursuant to the provisions of this clause. As a minimum, the following information shall be submitted by the Contractor with each proposal:

   a) A description of the difference between the existing contract requirement and the proposed change, and the comparative advantages and disadvantages of each;

   b) Itemized requirements of the contract which must be changed if the proposal is adopted, and the proposed revision to the contract for each such change;

   c) An estimate of the changes in performance and cost, if any, that will result from adoption of the proposal;

   d) An evaluation of the effects the proposed change would have on collateral costs to the Government, such as Government-furnished property costs, costs of related items, and costs of maintenance and operation; and

   e) A statement of the time by which the change order adopting the proposal must be issued so as to obtain the maximum benefits of the changes during the remainder of this contract. Also, any effect on the contract completion time or delivery schedule shall be identified.

3. Engineering change proposals submitted to the Contracting Officer shall be processed expeditiously. The Government shall not be liable for proposal preparation costs or any delay in acting upon any proposal submitted pursuant to this clause. The Contractor has the right to withdraw, in whole or in part, any engineering change proposal not accepted by the Government within the period specified in the engineering change proposal. The decision of the Contracting Officer as to the acceptance of any such proposal under this contract shall be final and shall not be subject to the "Disputes" clause of this contract.

4. The Contracting Officer may accept any engineering change proposal submitted pursuant to this clause by giving the Contractor written notice thereof. This written notice may be given by issuance of a modification to this contract. Unless and until a modification is executed to incorporate an engineering change proposal under this contract, the Contractor shall remain obligated to perform in accordance with the terms of the existing contract.

5. If an engineering change proposal submitted pursuant to this clause is accepted and applied to this contract, an equitable adjustment in the contract price and in any other affected provisions of this contract shall be made in accordance with this clause and other applicable clauses of this contract. When the cost of performance of this contract is increased or decreased as a result of the change, the equitable adjustment increasing or decreasing the contract price shall be in accordance with the "Changes" clause rather than under this clause, but the resulting contract modification shall state that it is made pursuant to this clause.

6. The contractor is requested to identify specifically any information contained in the engineering change proposal which the Contractor considers confidential and/or proprietary and which the Contractor prefers not to be disclosed to the public. The identification of information as confidential and/or proprietary is for information purposes only and shall not be binding on the Government to prevent disclosure of such information. Offerors are advised that such information may be subject to release upon request pursuant to the Freedom of Information Act. (5 U.S.C. 552).

7. The price for the substitute product is subject to the Government's approval prior to substitution.

8. The Government contemplates that newer commercial components having appropriate economic benefits which are offered by the contractor or any of its subcontractors will be reviewed and evaluated for inclusion in this contract following Government approval, subject to the provisions of this clause.

H.36 COMPLIANCE DOCUMENTS

The following Compliance Documents are listed herein in order to identify the version and the date of the document which will be referenced throughout this Contract. Any tailoring or modifications to these documents, which may be required, shall be defined in the area where the document is referenced within this Contract.

a. SPECIFICATIONS

Document	Title
(1) Federal Aviation Administration	
FAA-BC-AAP-001 July 7, 1987	ACCC Beacon Code Assignment Algorithms
FAA-D-2494/b March 14, 1984	Technical Instruction Book Manuscript: Electronic, Electrical, and Mechanical Equipment Requirements for Preparation of Manuscript and Production of Books

FAA-E-2716 March 24, 1983	Mode Select Beacon System (Mode S) Sensor
FAA-G-2100e March 11, 1987	Electronic Equipment, General Requirements
FAA-GFP-130-002 August 28, 1987	Government Furnished Property
FAA-TRO-AAP-003 August 28, 1987	AAS Transition Concept and Requirements
FAA-VS-AAP-001 July 28, 1985	VSCS Console Equipment MMI Requirements
NAS-MD-320 November 19, 1986	Multiple Radar Data Processing

(2) Military

DOD-D-1000B May 13, 1983	Drawings, Engineering, and Associated Lists
MIL-E-21981B August 15, 1986	Electronic Type Designations, Identification Plates and Markings, Requirements for
MIL-H-46855 January 31, 1979	Human Engineering Requirements For Military Systems, Equipment and Facilities

(3) Other

MTR80W00137 January 31, 1979	Human Engineering Requirements for Military Systems, Equipment and Facilities
NAD-83	The North American Datum of 1983
404L-50464-CI-114 April 15, 1985	Prime Item Development Specifications for Digital Bright Radar Indicator Tower Equipment (D-BRITE)

b. STANDARDS

Document	Title
(1) Federal and Federal Aviation Administration	
FED-STD-5 April 23, 1982	Standard Guides for Preparation of Proposed Item Logistics Data Records

FAA-STD-001B March 4, 1976	Color and Texture of Finishes for National Airspace System Equipment
FAA-STD-005d February 26, 1986	Preparation of Specification Documents
FAA-STD-016A September 21, 1987	Quality Control System Requirements
FAA-STD-018A September 30, 1987	Computer Software Quality Program Requirements
FAA-STD-020A September 26, 1985	Transient Protection, Grounding, Bonding, and Shielding
FAA-STD-021A August 17, 1987	Configuration Management (Contractor Requirements)
FAA-STD-024A August 17, 1987	Preparation of Test and Evaluation Plans And Test Procedures
FAA-STD-025A February 26, 1986	Preparation of Interface Control Documents
FAA-STD-028 March 28, 1985	Contract Training Program
FAA-STD-034 February 22, 1985	Instructions for the Preparation of Logistics Support Analysis (LSA) Data

(2) Military

DOD-STD-100C December 22, 1978	Engineering Drawing Practices
MIL-STD-129J November 5, 1986	Marking For Shipment and Storage
MIL-STD-130F May 21, 1982	Identification Marking of U.S. Military Property
MIL-STD-280A July 7, 1969	Definitions of Item Levels, Item Exchangeability, Models, and Related Terms
MIL-STD-454K February 14, 1986	Standard General Requirements for Electronic Equipment
MIL-STD-461C August 4, 1986	Electromagnetic Emissions and Susceptibility, Requirements for the Control of Electromagnetic Interference

MIL-STD-470A January 3, 1983	Maintainability Program for Systems and Equipment
DOD-STD-480A April 12, 1978	Configuration Control - Engineering Changes, Deviations and Waivers
MIL-STD-483A June 4, 1985	Configuration Management Practices for Systems, Equipment, Munitions and Computer Programs
MIL-STD-490A June 4, 1985	Specification Practices
MIL-STD-499A May 1, 1974	Engineering Management
MIL-STD-721C June 12, 1981	Definitions of Terms for Reliability and Maintainability
MIL-STD-781C March 20, 1981	Reliability Design Qualifications and Production Acceptance Tests: Exponential Distribution
MIL-STD-785B September 15, 1984	Reliability Program for Systems and Equipment Development and Production
MIL-STD-881A April 25, 1975	Work Breakdown Structures for Defense Material Items
MIL-STD-882B March 30, 1984	System Safety Program Requirements
MIL-STD-965A December 13, 1985	Parts Control Program
MIL-STD-1388-1A Notice 1 July 27, 1987	Logistics Support Analysis
MIL-STD-1388-2A Notice 2 January 15, 1987	DOD Requirements for a Logistics Support Analysis Record
MIL-STD-1474 October 10, 1980	Noise Limits for Army Material
MIL-STD-1472C May 2, 1981	Human Engineering Design Criteria for Military Systems, Equipment and Facilities
MIL-STD-1521B June 4, 1985	Technical Reviews and Audits for Systems Equipments, and Computer Software

MIL-STD-1528 August 1, 1972	Production Management
MIL-STD-1561a November 17, 1984	Provisioning Procedures, Uniform Department of Defense
MIL-STD-1629 November 24, 1980	Procedures For Performing A Failure Mode, Effects and Criticality Analysis
MIL-STD-2076(AS) March 1, 1978	Unit Under Test Compatibility With Automatic Test Equipment, General Requirements For
MIL-STD-2077(AS) March 9, 1978	General Requirements For Test Program Sets
DOD-STD-SDS December 5, 1985	Defense System Software Development
DOD-STD-2167 June 4, 1985	Defense System Software Development
DOD 5200.28-STD December 26, 1985	Department of Defense Trusted Computer System Evaluation Criteria
FED-STD-102B January 29, 1963	Preparation, Packaging, and Packing Levels

c. FEDERAL AVIATION ADMINISTRATION INTERFACE REQUIREMENT DOCUMENTS

Document	Title
NAS-IR-21012101 August 17, 1987	Advanced Automation Training System/ACCC
NAS-IR-21012401 August 25, 1987	Area Control Computer Complex to Traffic Management Processor (ACCC/TMP)
NAS-IR-21012501 August 17, 1987	Area Control Computer Complex to Real-Time Weather Processor (ACCC/RWP)
NAS-IR-21012505 August 17, 1987	Consolidated NOTAM System Processor to Area Control Computer Complex (CNSP/ACCC)
NAS-IR-21013402 August 17, 1987	Air Route Surveillance Radar Model-4 (ASR-4 [ATCBII-5]) to Area Control Computer Complex (ACCC) and Tower Control Computer Complex (TCCC) (Surveillance)
NAS-IR-21015103 August 17, 1987	Area Control Computer Complex to the Maintenance Processor Subsystem (ACCC/MPS)

NAS-IR-21020000 August 17, 1987	Local Communications Network/User System Interface (LCN/ User System)
NAS-IR-21024302 June 16, 1987	NADIN Packet Switched Network (PSN)/Local Communications Network (LCN) Gateway
NAS-IR-21024201 August 17, 1987	Voice Switching and Control System to Area Control Computer Complex (VSCS/ACCC)
NAS-IR-22014202 August 17, 1987	Tower Communications System to Tower Control Computer Complex (TCS/TCCC)
NAS-IR-23012101 August 17, 1987	Flight Service Data Processing System to Area Control Computer Complex (FSDPS/ACCC)
NAS-IR-31012201 August 17, 1987	Runway Visual Range System to Tower Control Computer Complex (RVR/TCCC)
NAS-IR-31032201 August 17, 1987	Tower Control Computer Complex to Automated Weather Observing System (TCCC/AWOS)
NAS-IR-34032101 August 17, 1987	Airport Surveillance Radar Model-9 (ASR-9 [ATCBI-5]) to Area Control Computer Complex (ACCC) and Tower Control Computer Complex (TCCC) (Surveillance)
NAS-IR-34060001 August 17, 1987	Mode Select Beacon System (Mode S [ASR-9]) to Area control Computer Complex (ACCC) and Tower Control Computer complex (TCCC) (Surveillance)
NAS-IR-34060002	Mode Select Beacon System (Mode S [ASR-3]) to Area Control Computer Complex (ACCC) and Tower Control Computer Complex (TCCC) (Surveillance)
NAS-IR-34060003 August 17, 1987	Mode Select Beacon System (Mode S [ARSR-4]) to Area Control Computer Complex (ACCC) and Tower Control Computer Complex (TCCC) (Surveillance)
NAS-IR-34060.04 August 17, 1987	Mode Select Beacon System (Mode S)/Area Control Computer Complex (ACCC) (Communications Link)
NAS-IR-34060005 August 17, 1987	Mode Select Beacon System (Mode S [Stand-Alone]) to Area Control Computer Complex (ACCC) (Surveillance)

NAS-IR-43014302 March 20, 1987	National Airspace Data Interchange Network Packet Switched Network Gateway/National Airspace Data Interchange Network Message Switched Network

d. OTHER DOCUMENTS

Document	Title
(1) Federal and Federal Aviation Administration	
FAA-SOW-240-002 August 28, 1987	Advanced Automation System Statement of Work - Acquisition Phase
FAA-CWBS-AAP-002 August 28, 1987	Advanced Automation System Preliminary Contract Work Breakdown Structure Acquisition Phase
FAA-SOW-240-001C May 6, 1985	Advanced Automation System Statement of Work - Design Competition Phase
FAA-DT-AAP-001A SCN 005 July 28, 1986	Demonstration and Test Requirements for the AAS DCP
FAA-ER-130-005M-AP August 28, 1987	AAS System Level Specification
FAA-SG-AAP-001 August 28, 1987	Metering and Automation Processing Functions Scenario Guidelines
AF Regulations 800-11 January 1984	Life Cycle Cost Management Program
FAA Order 1600.6B March 20, 1984	Protection of Agency Property
FAA Order 1600.54A March 20, 1984	Security of FAA Automatic Data Processing System and Facilities
FAA Order 1800.8E July 11, 1985	National Airspace System Configuration Management
FAA Order 3400.3E September 23, 1985	Airway Facilities, Personnel Certification Program
FAA Order 1350.22A January 7, 1982	Protecting Privacy of Information About Individuals

FAA Order 4660.1 August 28, 1979	Real Property Handbook
FAA Order 6000.15A December 12, 1986	General Maintenance Handbook for Airway Facilities
FAA Order 6000.27 June 1, 1979	Transmittal of Maintenance Philosophy Steering Group (MPSG) Report
FAA Order 6000.30A January 5, 1987	Airway Facilities Service/Policy Decisions For the Maintenance Program of the 1980s
FAA Order 6100.1A February 22, 1984	Maintenance of NAS Enroute Stage A Air Traffic Control System
FAA Standard Drawings E5896	Air Route Traffic Control Center Expansion and Modernization
DTFA01-84-C-00039 August 20, 1984	Advanced Automation System Design Competition Phase Contract (International Business Machines)
DTFA01-85-00200 December 13, 1984	Advanced Automation System - Procurement Contract (International Business Machines)
DOT/FAA/ES-85-01 ATC-85-1070 April 1986	Interface Management Plan
DOT/FAA/AP-83/6 Revision 1 November 15, 1985	Advanced Automation Program Data Management Plan
ICST/SNA 85-2 January 1985	A Test Plan for Implementations of the ISO Class 4 Transport Protocol, National Bureau of Standards
ICST/SNA 85-3 January 1985	A Test Plan for Implementations of the ISO Internetwork Protocol, National Bureau of Standards

(2) Military

DODI 7000.2 June 10, 1977	Performance Measurement for Selected Acquisitions
DOD Manual 4100.38M November 1983	Provisions And Other Procurement Screening Manual
SE-007-3 (Rev. E)	External Interface Control Document for the

	ASR-9 Sensor to Remote SCIP Interface, Westinghouse Electric Corporation
AFLC/AFSC P 173-5 October 1, 1987	Cost/Schedule Control System Criteria Joint Implementation Guide
DD Form 1949-1 July 1984	LSAR Data Selection Sheet
DD Form 1949-2 October 1984	Provisioning Requirement Statement
MIL-HDBK-472 May 24, 1966	Maintainability Prediction

(3) Other

IEEE 802.2 (802.3, 802.4, 802.5, and 802.6) 1986	Institute of Electrical and Electronic Engineers - Local Area Networks
ISO 7498 (Draft) 1984	Open Systems Interconnection (OSI) Reference Model
ISO SC21/N986 (out of date)	OSI Conformance Testing Methodology and Framework
ISO DP 8882 (1) February 1987 (2) July 1986	X.25 - DTE Conformance Testing General Principles (SC6/N4119), Packet Level Conformance Suite (SC6/N4120)
ANSI/IEEE Standard 344 1975	IEEE Recommended Practices for Seismic Qualification of Class IE Equipment for Nuclear Power Generating Stations
ANSI X3T9.5 (TBS)	FDDI Token Ring - Media Access Control (MAC)
ANSI X3T9.5 (TBS)	FDDI Token Ring - Station Management (SMT)
ANSI X3T9.5 (TBS)	FDDI Token Ring - Physical Layer Protocol (PHY)
ANSI X3T9.5 (TBS)	FDDI Token Ring - Physical Layer Medium Dependent (PMD)
MTR-85W39-01 Revision 2 August 1987	Advanced Automation Systems Loads Analysis and Definitions

AT&T Bulletin 326-130, Pub 51001, Issue 2, March 1981	New Equipment - Building System (NEBS) General Equipment Requirements, March 1981

H.37 DCP CONTRACT REFERENCE

For any reference in this Contract to the AAS DCP contract, the referenced contract number shall be "DTFA01-84-C-00039". This applies to all portions of this Contract.

H.38 VALUE ENGINEERING (APR 1984)

a. General

The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall in any net acquisition savings realized from accepted VECP's, in accordance with the incentive sharing rates in paragraph (f) below.

b. Definitions

1. "Acquisition saving," as used in this clause, means savings resulting from the application of a VECP to contracts awarded by the same contracting office or its successor (any by other contracting offices if included in an extended sharing base specified in the Schedule) for essentially the same unit. Acquisition savings include:

    a) Instant contract savings, which are the net cost reduction of this, the instant contract, and which are equal to the instant unit cost reduction multiplied by the number of instant contract units affected by the VECP, less the Contractor's allowable development and implementation costs;

    b) Concurrent contract savings, which are measurable net reductions in the prices of other contracts that are definitized and ongoing at the time the VECP is accepted; and

    c) Future contract savings, which are the product of the future unit cost reduction multiplied by the number of future contract units schedule for delivery during the sharing period. If this contract is a multiyear contract, future contract savings include savings on all quantities funded after VECP acceptance.

2. "Collateral costs," as used in this clause, means agency cost of operation, maintenance, logistic support, or Government-furnished property.

3. "Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall

projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

4. "Contracting office" includes any contracting office that the acquisition is transferred to, such as another branch of the agency or another agency's office that is performing a joint acquisition action.

5. "Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

6. "Future unit cost reduction," as used in this clause,means that instant unit cost reduction adjusted as the Contracting Officer considers necessary for projected learning or changes in quantity during the sharing period. It is calculated at the time the VECP is accepted and applies either:

   a) throughout the sharing period,unless the Contracting Officer decides that recalculation is necessary because conditions are significantly different from those previously anticipated, or

   b) to the calculation of a lump-sum payment, which cannot later be revised.

7. "Government costs," as used in this a clause, means those agency costs that result directly from developing the implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistics support. The term does not include the normal administrative costs of processing the VECP or any increase in the contract's cost or price resulting from negative instant contract savings.

8. "Instant contract," as used in this clause, means this contract, under which the VECP is submitted. It does not include increases in quantities after acceptance of VECP that are due to contract modifications, exercise of options, or additional orders. If this is a multiyear contract, the term does not include quantities funded after VECP acceptance. If this contract is a fixed-price contract with prospective price redetermination, the term refers to the period for which firm prices have been established.

9. "Instant unit cost reduction" means the amount of the decrease in unit cost of performance (without deducting any Contractor's development or implementation costs) resulting from using the VECP on this, the instant contract. If this is a service contract, the instant unit cost reduction is normally equal to the number of hours per line-item task saved by using the VECP on this contract, multiplied by the appropriate contract labor rate.

10. "Negative instant contract savings" means the increase in the cost or price of this contract when the acceptance of a VECP results in an excess of the Contractor's allowable development and implementation costs c... the product of the instant unit cost reduction multiplied by the number of instant contract units affected.

11. "Net acquisition savings" means total acquisition savings, including instant, concurrent, and future contract savings, less Government costs.

12. "Sharing base," as used in this clause, means the number of affected end items on contracts of the contracting office accepting the VECP or, if the sharing base has been extended under paragraph 48.102(e) of the Federal Acquisition Regulation (48 CFR Chapter 1), the number of affected end items on contracts of contracting offices included in the extended base specified in the Schedule.

13. "Sharing period," as used in this clause, means the period beginning with acceptance of the first unit incorporating the VECP and ending at the later of:

    a) 3 years after the first unit affected by the VECP is accepted, or

    b) the last scheduled delivery date of an item affected by the VECP under this contract's delivery schedule in effect at the time the VECP is accepted.

14. "Unit," as used in this clause, means the item or task to which the Contracting Officer and the Contractor agree the VECP applies.

15. "Value engineering change proposal (VECP)," means proposal that -

    a) Requires a change to this, the instant contract, to implement; and

    b) Results in reducing the overall projected cost to the agency without impairing essential functions or characteristics; provided that it does not involve a change -

        1) In deliverable end item quantities only;

        2) In research and development (R&D) end items or R&D test quantities that is due solely to results of previous testing under this contract; or

        3) To the contract type only.

c. VECP Preparation

As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (8) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

1. A description of the difference between the existing contract requirement and the proposed requirement, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, the effect of the change on the end item's performance, and any pertinent objective test data.

2. A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

3. Identification of the unit to which the VECP applies.

4. A separate, detailed cost estimate for (i) the affected portions of the existing contract requirement, and (ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under the Subcontracts paragraph of this clause, below.

5. A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

6. A prediction of any effects the proposed change would have on collateral costs to the agency.

7. A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

8. Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

d. Submission

The Contractor shall submit VECP's to the Contracting Officer, unless this contract states otherwise. If this contract is administered by other than the contracting office, the Contractor shall submit a copy of the VECP simultaneously to the Contracting Officer and to the Administrative Contracting Officer.

e. Government Action

1. The Contracting Officer shall notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer shall notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of decision The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

2. If the VECP is not accepted, the Contracting Officer shall notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

3. Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause and made either before or within a reasonable time after contract performance is completed. Until such a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The Contracting Officer's decision to accept or reject all or part of any VECP and a decision as to which of the sharing rates applies shall be final and not subject to the Disputes clause or otherwise subject to obligation under the Contract Disputes Act of 1978 (41 U.S.C. 601-613).

f. Sharing Rates

If a VECP is accepted, the Contractor shall share in net acquisition savings according to the percentages in the table below. The percentage paid the Contractor depends upon:

1. this contract's type (fixed-price, incentive, or cost-reimbursement)

2. the sharing arrangement specified in paragraph (a) above (incentive, program requirement, or a combination delineated in the Schedule), and

3. the source of the savings (the instant contract, or concurrent and future contracts), as follows:

CONTRACTOR'S SHARE OF NET ACQUISITION SAVINGS

(figures in percent)

Contract Type	Sharing Arrangement: Incentive (voluntary)		Sharing Arrangement: Program Requirement (mandatory)	
	Instant contract rate	Concurrent and future contract rate	Instant Contract rate	Concurrent and future contract rate
Fixed-priced (other than incentive)	50	50	25	25
Incentive (fixed-price or cost)	*	50	*	25
Cost-reimbursement (other than incentive)**	25	25	15	25

* Same sharing arrangement as the Contractor's profit or fee adjustment formula.

** Includes cost-plus-award-fee contracts.

g. Calculating Net Acquisition Savings

1. Acquisition savings are realized when (i) the cost or price is reduced on the instant contract, (ii) reductions are negotiated in concurrent contracts, (iii) future contracts are awarded, or (iv) agreement is reached on a lump-sum payment for future contract savings (see paragraph (i) (4) below). Net acquisition savings are first realized, and the Contractor shall be paid a share, when Government costs and any negative instant contract savings have been fully offset against acquisition savings.

2. Except in incentive contracts, Government costs and any price or cost increases resulting from negative instant contract savings shall be offset against acquisition savings each time such savings are realized until they are fully offset. Then, the Contractor's share is calculated by multiplying net acquisition savings by the appropriate Contractor's percentage sharing rate (see paragraph (f) above). Additional Contractor shares of net acquisition savings shall be paid to the Contractor at the time realized.

3. If this is an incentive contract, recovery of Government costs on the instant contract shall be deferred and offset against concurrent and future contract savings. The Contractor shall share through the contract incentive structure in savings on the instant contract items affected. Any negative instant contract savings shall be added to the target cost or to the target price and ceiling price, and the amount shall be offset concurrent and future contract savings.

4. If the Government does not receive and accept all items on which it paid the Contractor's share, the Contractor shall reimburse the Government for the proportionate share of these payments.

h. Contract Adjustment

The modification accepting the VECP (or a subsequent modification issued as soon as possible after any negotiations are completed) shall-

1. Reduce the contract price or estimated cost by the amount of instant contract savings, unless this is an incentive contract;

2. When the amount of instant contract savings is negative, increase the contract price, target price and ceiling price, target cost, or estimated cost by that amount;

3. Specify the Contractor's dollar share per unit on future contracts, or provide the lump-sum payment;

4. Specify the amount of any Government costs or negative instant contract savings to be offset in determining net acquisition savings realized from concurrent or future contract savings; and

5. Provide the Contractor's share of any net acquisition savings under the instant contract in accordance with the following:

   a) Fixed-price contracts - add to contract price

   b) Cost-reimbursement contract - add to contract fee.

i. Concurrent and Future Contract Savings

1. Payments of the Contractor's share of concurrent and future contract savings shall be made by a modification to the instant contract in accordance with subparagraph (h)(5) above. For incentive contracts, shares shall be added as a separate firm-fixed-price line item on the instant contract. The Contractor shall maintain records adequate to identify the first delivered unit for 3 years after final payment under this contract.

2. The Contracting Officer shall calculate the Contractor's share of concurrent contract savings by:

a) subtracting from the reduction in price negotiated on the concurrent contract any Government costs on negative instant contract savings not yet offset, and

b) multiplying the result by the Contractor's sharing rate.

3. The Contracting Officer shall calculate the Contractor's share of future contract savings by:

   a) multiplying the future unit cost reduction number of future contract units scheduled for delivery during the sharing period,

   b) subtracting any Government costs or negative instant contract savings not yet offset, and

   c) multiplying the result by the Contractor's sharing rate.

4. When the Government wishes and the Contractor agrees, the Contractor's share of future contract savings may be paid in a single lump-sum rather than in a series of payments over time as future contracts are awarded. Under this alternate procedure, the future contract savings may be calculated when the VECP is accepted, on the basis of the Contracting Officer's forecast of the number of units that will be delivered during the sharing period. The Contractor s share shall be included in a modification to this contract (see subparagraph (h) (3) above) and shall not be subject to subsequent adjustment.

5. Alternative no-cost settlement method. When, in accordance with subsection 48.104-3 of the Federal Acquisition Regulation, the Government and the Contractor mutually agree to use the no-cost settlement method, the following applies:

   a) The Contractor will keep all the savings on the instant contract and on its concurrent contracts only.

   b) The Government will keep all the savings resulting from concurrent contracts placed on other sources, savings from all future contracts, and all collateral savings.

j. Collateral Savings

If a VECP is accepted, the instant contract amount shall be increased, as specified in subparagraph (h) (3) above, by 20 percent of any project collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings shall not exceed (1) the contract's firm-fixed-price, target price, target cost, or estimated cost, at the time of the VECP is accepted or (2) $100,000, whichever is greater. The Contracting Officer shall be the sole determiner of the amount of collateral savings, and that amount shall be subject to the Disputes clause of otherwise subject to litigation under 41 U.S.C. 601-613.

k. Relationship to Othe- Incentives

Only those benefits of an accepted VECP not rewardable under performance, design-to-cost (production unit cost, operating and support costs, reliability and maintainability), or similar incentives shall be rewarded under this clause. However, the targets of such incentives affected by the VECP shall not be adjusted because of VECP acceptance. If this contract specifies targets but provides no incentive to surpass them, the value engineering sharing shall apply only to the amount of achievement better than target.

l. Subcontracts

The Contractor shall include any appropriate value engineering clause in any subcontract of $100,000 or more and may include one in subcontracts of lesser value. In calculating any adjustment in this contract's price for instant contract savings (o0r negative instant contract savings)(, the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs, and any value engineering incentive payments to a subcontractor, clearly resulting from a VECP accepted by the Government under this contract. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that the payments shall not reduce the Government's share of concurrent or future contract savings or collateral savings.

m. Data

The Contractor may restrict the Government's rights to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

> "These data, furnished under the Value Engineering clause of Contract ______________________, shall not be disclosed outside the Government or duplicated, used or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. The restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations."

If the VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are refined in Part 27 of the Federal Acquisition Regulation).

H.39 GOVERNMENT ACCESS TO CONTRACTOR DEVELOPMENT SYSTEMS

The Contractor shall provide the Government with on-line access to the Contractor's Software Development Library (SDL). This access shall involve read-only permission for examination of Ada-based Program Design Language. The Contractor shall also provide the Government on-line access to the Contractor's documentation library. This should include access to documentation under development and/or revision. This access shall involve read-only permission for examination of all available documentation.

H.40 PROPOSED AAS SITES

The planned sites for equipment delivery are shown in Table B.1 through B.7 and the proposed delivery schedules are shown in Table F.1 and F.6. Notwithstanding any other provisions of this Contract, the Government has the right to change the sequencing of one or more of the planned sites, and, in addition, the right to substitute a new site or sites for one or more of the planned sites without any additional cost or charge to the Government; provided that such change or substitution is made by the Contracting Officer's written notification to the Contractor at least twelve (12) months prior to the Contractual delivery date for the equipment at the planned site or sites being changed or substituted and that the equipment complement for any site is not increased or any additional site activities required. Changes and substitutions may also be made by such Contracting Officer's written notice at a date later than a aforesaid twelve (12) months prior to the Contract Delivery Date, in which event such change or substitution shall be considered a change within the meaning of the 'Changes' clause of the Contract.

H.41 ABNORMAL ECONOMIC PRICE ADJUSTMENT

a. The contract price, including the price(s) of any option(s), if exercise, are subject to both increases and decreases in accordance with the terms of this clause. Any economic price adjustment contemplated by this clause shall be to adjust the cost base of this contract.

b. The forward pricing factors utilized are as set forth in the Contractor's Cost Proposal.

The intent of this clause is to provide an Economic Price Adjustment (EPA) for abnormal escalation (upward/downward) to the labor and material costs including appropriates overheads and G&A expense. Adjustments shall be made in accordance with this clause regardless of changes in actual cost incurred during the performance of this contract.

c. The indexes applicable for adjustment under this clause shall be as follows:

Cost Element	Index Source(s)	Index Code

Direct Labor	BLS	SIC-36
Materials	BLS	PPI-1178

d. The adjustments in the contract price on account of fluctuations in the economy shall be made for Calendar Year 1992 through contract completion as follows and as shown in the attached Price Adjustment Table based on the applicable final published index(ices).

1. The projected index growth expressed is agreed to at the time of contract award for the appropriate periods involved and is set forth in Column 3.

2. When the actual index growth (Column 5) is within the tolerance band (Column 4), no adjustment will be made.

3. When the actual index growth is outside the tolerance band, the difference between the actual and projected index will be computed as a plus or minus figure and set forth in Column 6.

4. The difference, whether plus or minus, shall be divided by the estimated index set forth in Column 3. This project is the percentage of change in the index growth and is set forth in Column 7.

5. The Negotiated Expenditure Profile (including appropriate overhead and G&A expense) set forth in Column 2 of the table is multiplied by the percentage change (plus or minus) in Column 7 and the resulting amount placed in Column 8.

6. The sum of the pluses and minuses of the amounts in Column 8 for each cost factor shall be the amount the total contract cost is adjusted for each appropriate period.

7. The calculation required by the table (upward or downward) will be made by the contractors in accordance with the computation periods shown in the attached table and will be submitted on an annual basis to the Contracting Officer within thirty days after publication of the final indices for the period of adjustment. Any EPA adjustment will be incorporated in a supplemental agreement which shall include the calculations upon which they are made and unit prices of undelivered items will be adjusted accordingly. If final indices have not been promulgated within 120 days after the end of the pertinent period, preliminary indices shall be used. Any changes resulting from the publication of the final indices shall be reflected in a subsequent supplemental agreement

8. Regardless of the actual changes in the cost factors during the performance of this contract, price adjustments shall be made only a provided herein. However,this clause neither prohibits changes in contract nor does it preclude revisions to the attached table when

other contractual provisions affect the expenditure profile or cost factors.

9. In the event that the preparing agency discontinues determining any one o. the indices identified in the table, the parties shall mutually agree upon an appropriate substitute for the discontinued index for use in this clause. In the event that an agency alters its method of calculating any one of the indices, appropriate adjustments shall be made to put it on a comparable basis with the index calculated before the change. "Alters' as used above excludes the revisions made each year by the BLS to the SIC and PPIR to reflect improved pricing techniques, to increase preliminary market coverage and to take into account changes in production and marketing pattern.

10. Should this contract be terminated in whole for any reason the Negotiated Expenditure Profile and project indices for the period in which termination occurs shall be revised. The revised Negotiated Expenditure Profiles shall be calculated by dividing the profile for the period in which termination occurs by 12. The quotient shall be multiplied by the number of months effort in that period including the month in which termination occurs to obtain the Negotiated Expenditure Profiles upon which adjustments will be calculated. The revised projected indices shall be calculated by subtracting the last period in which the termination occurs and dividing this amount by 12. The quotient shall be multiplied by the number of months effort in that period including the month in which termination occurs and adding it to the last period projected index to obtain the revised projected index. The actual index for the month in which termination occurs will then be used to determine if any adjustment is required in accordance with the formula in (d) above. Tolerance bands will not be adjusted.

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PRICE ADJUSTMENT TABLE

Cost Factor:
Labor; Burden, Other
Direct, and Indirect Costs:
Excluding Materials

Index Identification: SIC 36

(1) COMPUTATION PERIOD	(2) NEGOTIATED EXPENDITURE PROFILE	(3) PROJECTED INDEX	(4) TOLERANCE/BAND LOWER/UPPER		(5) ACTUAL INDEX	(6) INDEX DIFFERENCE (5)-(3)	(7) PERCENT DIFFERENCE (6)/(3)	(8) ADJUSTMENT (7)X(2)
CALENDAR:								
1987		100.0						
1988	43,650,777	103.56	102.52	104.60				
1989	122,278,419	107.76	106.69	108.84				
1990	99,593,664	113.68	112.54	114.82				
1991	96,803,007	119.15	117.96	120.34				
1992	92,846,684	125.27	124.02	126.53				
1993	79,489,149	132.08	130.75	133.40				
1994	72,480,291	139.21	137.82	140.60				
1995	61,685,186	145.85	144.39	147.31				
1996	59,022,636	153.01	151.48	154.54				
1997	39,966,039	159.99	158.39	161.59				
1998	20,967,715	167.28	165.61	168.95				
1999	11,836,265	174.91	173.16	176.66				
2000	6,929,285	182.89	181.06	184.71				
2001	5,446,988	191.22	189.31	193.14				
2002		199.94	197.95	201.94				
2003		209.06	206.97	211.15				
2004		218.60	216.41	220.78				
2005		228.56	226.28	230.85				
2006		238.99	236.60	241.38				
2007		249.88	247.38	252.38				
2008		261.28	258.67	263.89				
2009		273.19	270.46	275.92				
2010		285.65	282.79	288.51				

PRICE ADJUSTMENT TABLE

Cost Factor: Materials   Index Identification: PPI 1178

(1) COMPUTATION PERIOD	(2) NEGOTIATED EXPENDITURE PROFILE	(3) PROJECTED INDEX	(4) TOLERANCE/BAND LOWER/UPPER		(5) ACTUAL INDEX	(6) INDEX DIFFERENCE (5)-(3)	(7) PERCENT DIFFERENCE (6)/(3)	(8) ADJUSTMENT (7)X(2)
CALENDAR:								
1987		100.0						
1988	5.204.636	105.59	104.53	106.65				
1989	14,436,562	109.16	108.07	110.25				
1990	35.289.958	110.88	109.77	111.99				
1991	82.130,618	114.89	113.74	116.04				
1992	100,911,957	118.75	117.56	119.93				
1993	98.969.866	123.73	122.50	124.97				
1994	88.409.568	128.28	126.99	129.56				
1995	97,631,196	133.33	132.00	134.66				
1996	54,049,467	138.14	136.76	139.52				
1997	17,853,218	143.05	141.62	144.48				
1998	4,606,102	148.12	146.64	149.61				
1999	404,031	153.38	151.85	154.92				
2000	227,190	158.83	157.24	160.42				
2001	218.922	164.47	162.82	166.11				
2002		170.31	168.60	172.01				
2003		176.35	174.59	178.11				
2004		182.61	180.79	184.44				
2005		189.09	187.20	190.98				
2006		195.81	193.85	197.76				
2007		202.76	200.73	204.79				
2008		209.96	207.86	212.06				
2009		217.41	215.24	219.58				
2010		225.13	222.88	227.38				

Definitions:

Cost factor, index identification, and columns (1) (2) (3) (4) to be completed at time of contract award.

(2) Negotiated Expenditure Profile. The cost of current (then year) dollars (including appropriate overhead & G&A expense) set forth by computation period of delivery/incurrence that the parties agree are subject to adjustment.

(3) Projected Index. The Projected trend of the cost factor begin used.

Note: The Price Adjustment Tables will be revised as options are exercised.

H.42 Inplant Alternate Technical Officer (ATO)

A Government ATO will be in plant at both the Prime Contractor's facility and the Display Subcontractor's (Raytheon Company) facility to assist the Contracting Officer and the Program Office in assessing progress under this Contract. The Contractor and Subcontractor shall furnish to the ATO copies of correspondence and other documentation directed to the FAA which are pertinent to timely Contract performance and delivery of items required by the Contract, including the Contractor's request for technical changes to specification requirements and request for progress payments, as well as progress reports and PERT networks when required by the Contract. Copies of purchase orders shall also be furnished when requested by the ATO.

The Contractor and Subcontractor shall provide suitable office space for the ATO to perform his/her duties (office may be shared by the ATO and QRO). Lockable file cabinets, suitable desks, typewriters and chairs, all in good repair, and any other miscellaneous office equipment, as required, shall be supplied by the Contractor and Subcontractor. The Contractor and Subcontractor shall also provide secretarial help as required by the ATO for typing any letters or reports. A telephone shall be provided to each desk. The telephones may be connected to one common line. The cost of long distance calls placed by the ATO will be borne by the Government.

H.43 Commercial Software Leases

The commercial software being supplied under this contract is offered either on a one-time charge or a monthly lease basis. No monthly lease charges accrue toward the purchase and ownership of any commercial software.

The IBM licensed commercial software is offered on a "restricted computer software" basis, subject to the terms and conditions of Special Item 132-30, Licensed Program, of the IBM/GSA ADP Schedule Contract No. GS00K88AGS5927, excluding Section 5-A (FLPP), or Special Item 132-33, Licensed Programs for IBM Micro Computers, of the IBM/GSA Schedule Contract No. GS00K87AGS6062, as appropriate.

With respect to the software licensed under this contract, the following distinctions are made:

a. An IBM program "release" represents a modification (update) of an existing IBM standard commercial program product, which may contain additional functions, and which incorporates all program fixes made to the software since issuance of the prior release. A program release does not change the name or number of the program and is provided by IBM to the current licensees at no increase in the program lease or one-time charge.

b. An IBM program "version" is characterized as a separate (new) program product which contains significantly more code and/or function than its earlier version. A new program version has its own name (which may or may not be the same as the older version), a new version number and a new product number. This new version is considered to be a completely new product, is licensed with its own terms and conditions and is offered to the customer as a separately priced product.

H.44 Approval for ISSS Common Console Production Continuation

The Government intends that approval for the production of Common Consoles be given in two steps. Up to 750 Common Consoles may be produced in the initial limited production period. This limited production period shall begin upon the Contracting Officer's notification to the Contractor of Acceptance of the ISSS at the FAA Technical Center (Site 021.a) in accordance with the schedule of Table F.1. This limited production run shall be sufficient to provide Common Consoles and spares required for the following ISSS sites: FAA Technical Center (Site 021.a and 021.b), FAA Aeronautical Center (Site 022), and the first three ARTCC sites (Sites 01, 02, and 03) listed in Table B.1.

Approval for the continuation of full Common Console production will be granted following the successful completion of OT&E at the FAA Technical Center (Site 021.a of Table F.1), which shall occur in accordance with the ORD date given in Table F.1. The Contracting Officer shall inform the Contractor within fourteen (14) days after the successful completion of OT&E at the FAA Technical Center of the approval for the continuation of production of Common Consoles or the problems which shall be resolved in order to obtain the approval for continuation of Common Console production.

H.45 Risks Requiring Indemnification

For the purposes of FAR 52.250-1(c), the Government agrees that the risks defined in this contract as unusually hazardous and for which indemnification is granted and provided hereunder are the risks, whether within or outside the United States, of any accident or occurrence, or series of accidents or occurrences, causing personal injury death, loss of or damage to property, or loss of use or property, or any combination of the foregoing arising out of or resulting from the use, operation, malfunction, or failure of any hardware, software or services provided to the Government for its use in the FAA Advanced Automation System.

H.46 Subcontractor Indemnification

The Government hereby grants approval to IBM to flow down to Raytheon Company and Computer Sciences Corporation the indemnification provided by Public Law 85-804 and FAR 52.250-1.

H.47 Not Used

H.48 Commercial Products

It is agreed and understood that the commercial equipment to be provided has not been specifically designed or specially manufactured for the Government in accordance with any contract specifications.

H.49 DCAS Delegation

The cognizant Corporate Administrative Contracting Officer, DCAS Manassas, Virginia, is delegated responsibility to negotiate the contractor's billing and final rates and to administer Cost Accounting Standards compliance and DODI 7000.2 compliance.

H.50 IRAD and B & P Expense

For purposes of determining allowable cost, the Contractor's IRAD and Bid and Proposal expenses shall be recognized pursuant to Contractor's Tri-Service Agreements.

H.51 Cost Accounting Standards (CAS)

Under this contract, CAS shall not apply to IBM affiliates or divisions other than the Federal Systems Division as products and services produced by such other divisions and furnished under the contract are considered commercial products and services.

H.52 Engineering Change Proposals

With respect to Government solicited requests for Engineering Change Proposals, as provided under Clause H.22, the costs for preparation of such proposals will be reimbursed in accordance with the procedures set forth in the Changes clause. Any costs for preparation of contractor initiated proposals will be borned by the contractor.

H.53 Audit

Under this contract it is recognized that the Government has no right to audit the books and records associated with the commercial products (except for the Examination of Records clause) nor shall any cost data be provided for commercial products or services.

H.54 Model Numbers - IBM Unannounced Products

The model numbers of the IBM unannounced products cited in this proposal are company confidential and proprietary information, are included for reference only and are subject to change until public announcement. The IBM Unannounced product numbers are identified in the Technical Proposal. Volume I. Section 1.0.4. Figure 1.0.4-1 appearing on Page I-1-11.

H.55 Special Tools and Test Equipment

In accordance with FAR 52.245-18. the Government hereby authorizes the procurement of the special tools and test equipment described in Section 1.12 of Volume III. entitled Cost Proposal.

H.56 Predetermination of Rights in Data

The contractor reserves the right to deliver the computer software listed below with Restricted Rights since those have been developed at private expense. The Contractor further reserves the right to amend this list to add additional products developed at private expense as they may be delivered under this contract.

PRODUCT NUMBER	PRODUCT NAME
IBM-AIX	ADVANCED INTERACTIVE EXECUTIVE
5664-167	VM/SP R4
5664-169	VM/XA/SF VM/XA SYS FAC R2.2
5664-173	VM/SP HPO HIGH PERF OPTION R5
5664-188	RSCS V2 REM SPOOL COM SUBSYSTEM R2
5664-189	STAIRS/CMS R.1.1 VM
5664-191	VM MONITOR ANALYSIS
5664-200	GDDM BASE VM V2
5664-280	ACF/VTAM VM3 FOR VM/SP R2
5664-282	ISPF/DM VM/CMS V2
5664-285	ISPF/PDF V2 for VM/CMS
5664-315	FILE TRANSFER PROGRAM V2 R2
5665-XA2	MVS/XA DFP DATA FAC PROD V2
5665-266	INFORMATION/ACCESS V3
5665-274	RMF RESOURCE MEAS FAC V3 R5
5665-285	OS/VS2 MVS TSP EXTENSIONS R4
5665-289	ACF/VTAM V3 FOR MVS/XA R.1.1
5665-317	ISPF/PDF V2 FOR MVS
5665-319	ISPF/DM MVS V2
5665-327	DFDSS V2 R3
5665-333	NETWORK PERFORMANCE MONITOR R2
5665-338	AFC/SSP V3 FOR MVS
5665-354	DB2PM PERFORMANCE MONITOR
5665-356	GDDM/MVS V2 R1.1
5665-362	NETVIEW FOR MVS/XA
5665-371	OPC/A EVENT MANAGER SUBSYSTEM
5665-372	OPC/A PRODUCTION CONTROL SUBSYSTEM
5665-373	OPC/A/NETWORK EVENT COMMUNICATOR
5665-383	INFORMATION/MGMT V3 MVS
5665-384	INFORMATION/SYSTEM V3 MVS
5665-397	SLR SERVICE LEVEL REPORTER V3

PRODUCT NUMBER	PRODUCT NAME
5665-955	INFO/MVS INFORMATION MVS
5668-AAA	QUERY MGT FAC - VM V2
5668-721	QUERY MGT FAC - MVS V2
5668-788	DATA EXTRACT V2
5668-813	CROSS SYS PRODUCT/APP DEV V3
5668-814	CROSS SYS PRODUCT/APP EXEC V3
5668-854	ACF/NCP V4 VSE R2
5668-932	FTP FILE TRANSFER PROGRAM V2
5668-949	SMP/E V1 R4 SYS MOD PROG R4
5668-962	ASSEMBLER H V2 VFE
5688-004	SQL/DS V2
5713-AAR	IBM DEVELOPMENT SYS FOR MVS
5713-AAT	IBM DEVELOPMENT SYS FOR VM
5734-LM5	PL/1 TRANSIENT LIBRARY
5740-SM1	DATA FACILITY SORT R9
5740-XC6	MVS/SP JES2 V2 R2
5740-XX1	CICS OS/VS
5740-XXH	RACF RESOURCE ACC CTL FAC MVS R7.1
5740-XYR	DB2 DATABASE
5746-AM2	VSE/VSAM R3
5747-DS1	DSF DEV SUPP FA STANDALONE R8
5748-MS1	VM/IPF R5.3
5748-RC1	VM PASSTHROUGH FACILITY R3
5748-XE4	DIRECTORY MAINT R2
5748-XX9	DOCUMENT COMPOSITION FACILITY
5749-010	VM/370
5752-010	MVS/370 BCP R8
5767-032	APPLICATION SYSTEM PROGRAM PROD R5
5785-EAW	TAPE LIBRARY CONTROL SYSTEM
5796-PLZ	SUPER-C SOURCE COMPARE AUDIT
5796-PNA	VM REALTIME MONITOR R1.7
5798-DPC	NETWORK MGT PROD FACILITY R1.1
5798-DT0	DB2 MIGRATION AID UTILITY
5798-DWX	SDSF V2
5798-DZW	MVS/TSO DYNAMIC STEPLIB FACILITY
6280-060	DOS 3.3
	SILICON GRAPHICS SOFTWARE

H.57 Remittance Address

Payments made under this contract will be remitted to:

IBM Corporation
Attn: SID Cashier
18100 Frederick Pike
Gaithersburg, Maryland 20878

H.58 Commercial Pricing

The contractor agrees with the FAA that FAR 52.215-32, Certification of Commercial Pricing, is not required under this contract since for purposes of this clause, the contract award will be based on full and open competition.

H.59 Pixel Matrix Common Console Main Display Requirements

It is recognized that the electric and magnetic field emissions requirements and the line width requirements for the pixel matrix common console main display will be difficult to fully achieve. The contractor shall take all reasonable steps to achieve full compliance with the requirements. If unable to fully comply, the contractor shall present a detailed description of all steps taken to achieve full compliance and the specifics of any technical and cost factors which prevent full compliance. Based on the above, the Government will waive that portion of the requirement that is not achievable with then current technology. The specific requirements from the System Level Specification (FAA-ER-130-005M-AP) which may be relaxed under the provisions of this clause are limited to those identified below:

a. Requirements to limit electric and magnetic field emissions from the face of the pixel matrix common console main display cathode ray tube:

SLS paragraph 3.3.2.1: "Emission - All equipment shall be electrically designed and constructed to control electric and magnetic field emissions. All equipment shall, at a minimum, meet the conducted and radiated emission limits of MIL-STD-461, Part 7."

b. Line width requirements for the pixel matrix display for the common console main display:

That portion of SLS paragraph 3.2.1.1.3.2.2.1.1.2.2 identified below:

"b. Pixel Matrix Display - Single pixel width (non-antialiased) vertical, horizontal and diagonal (plus and minus 45 degrees with respect to the horizontal) lines in each primary color and at the full brightness required by section 3.2.1.1.3.2.2.1.1.4 shall have line widths that do not exceed the following:

1. .040 inch at the 5 percent brightness of line profile and .018 inch at the 50 percent brightness point of the line profile

for all display surface locations within an inscribed circle (quality circle) having as its diameter the usable display height.

2. .046 inch at the 5 percent brightness of the line profile and .021 inch at the 50 percent brightness points of the line profile for all display surface locations outside the 'quality circle'."

H.60 EFFECT OF EQUIPMENT ON POWER SOURCE REQUIREMENTS

It is recognized that the effect of equipment on power source requirements, as specified in Paragraph 3.3.2 of the System Level Specification (FAA-ER-130-005H-AP), may be difficult to fully achieve. The Contractor shall take all reasonable steps to achieve full compliance with the requirements. If unable to fully comply, the Contractor shall present (1) a detailed description of all steps taken to achieve full compliance, (2) the specifics of any technical and cost factors which prevent full compliance and (3) a detailed characterization of the worst case current wave form distortion contribution made by the AAS. Based on the above, the Government will waive that portion of the requirement that is not achievable, provided that the AAS equipment is neither degraded by nor degrades the operation of all other AAS and non-AAS equipment which is colocated at that facility.

H.61 Rate Ceilings

The Contractor agrees to maintain rate ceilings through calendar year 1991 for overhead and general and administrative rates incurred during the performance of this contract. The Government's obligation with respect to the rate ceiling for overhead shall be limited to an increase of five percent (5%) of the overhead rate proposed for each year and, for the general and administrative (G&A) rate, shall be limited to an increase of one (1) percent point added to the proposed G&A rate for each year. In order to limit any financial exposure to the Government, the Contractor shall use the downward performance of one rate to offset the increase of the other rate within a specific calendar year; however, this offset may not be made between calendar years.

The Contractor will bill for actual rates incurred during this period. Final adjustments to the rates for each affected calendar year shall be subject to the final negotiated billing rate settlement reached between IBM and CACO and shall be submitted by public voucher for any adjustments to the rates for which costs were originally billed.

PART II- SECTION I
CONTRACT CLAUSES

I.1 52.252-2 CLAUSES INCORPORATED BY REFERENCE (APR 1984) (Fixed Price Line Items Only)

This Contract incorporates the following clauses by reference with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. These Clauses apply to the Fixed Price Type line items only.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

52.202-1	DEFINITIONS (Apr 1984)
52.203-1	OFFICIALS NOT TO BENEFIT (APR 1984)
52.203-3	GRATUITIES (APR 1984)
52.203-5	COVENANT AGAINST CONTINGENT FEES (APR 1984)
52.203-6	RESTRICTION ON SUBCONTRACTOR SALES TO THE GOVERNMENT (JUL 1985)
52.203-7	ANTI-KICKBACK PROCEDURES (FEB 1987)
52.204-2	SECURITY REQUIREMENTS (APR 1984)
52.208-1	REQUIRED SOURCES FOR JEWEL BEARINGS AND RELATED ITEMS (APR 1984)
52.210-5	NEW MATERIAL (APR 1984)
52.210-7	USED OR RECONDITIONED MATERIAL, RESIDUAL INVENTORY, AND FORMER GOVERNMENT SURPLUS PROPERTY (APR 1984)
52.212-8	DEFENSE PRIORITIES AND ALLOCATION REQUIREMENTS (MAY 1986)
52.212-13	STOP WORK ORDER (APR 1984)
52.215-1	EXAMINATION OF RECORDS BY CONTROLLER GENERAL (APR 1984)
52.215-2	AUDIT - NEGOTIATION (APR 1984)
52.215-21	CHANGES OR ADDITIONS TO MAKE-OR-BUY PROGRAM (APR 1984)
	ALTERNATE I
52.215.22	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA (APR 1984)
52.215-23	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA MODIFICATIONS (APR 1985)

52.215-24	SUBCONTRACTOR COST OR PRICING DATA (APR 1985)
52.215-25	SUBCONTRACTOR COST OR PRICING DATA MODIFICATIONS (APR 1985)
52.215-26	INTEGRITY OF UNIT PRICES - ALTERNATE I (APR 1987)
52.215-30	FACILITIES CAPITAL COST OF MONEY (SEP 1987)
52.216-16	INCENTIVE PRICE REVISION FIRM TARGET - ALTERNATE I (APR 1984)
52.217-7	OPTION FOR INCREASED QUANTITY-SEPARATELY PRICED LINE ITEM (APR 1984)
52.219-8	UTILIZATION OF SMALL BUSINESS CONCERNS AND SMALL DISADVANTAGED BUSINESS CONCERNS (JUN 1985)
52.219-9	SMALL BUSINESS CONCERNS AND SMALL DISADVANTAGED SUBCONTRACTING PLANS (APR 1984)
52.219-13	UTILIZATION OF WOMEN-OWNED SMALL BUSINESS (AUG 1986)
52.220-3	UTILIZATION OF LABOR SURPLUS AREA CONCERNS (APR 1984)
52.220-4	LABOR SURPLUS AREA SUBCONTRACTING PROGRAM (APR 1984)
	TEMPORARY REGULATION 70 - CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION - GENERAL
52.222-26	EQUAL OPPORTUNITY (APR 1984)
52.222-28	EQUAL OPPORTUNITY PREAWARD CLEARANCE OF SUBCONTRACTS (APR 1984)
52.222-35	AFFIRMATIVE ACTION FOR SPECIAL DISABLED AND VIETNAM ERA VETERANS (APR 1984)
52.222-36	AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS (APR 1984)
52.223-2	CLEAN AIR AND WATER (APR 1984)
52.225-3	BUY AMERICAN ACT - SUPPLIES (APR 1984)
52.225-9	BUY AMERICAN ACT - TRADE AGREEMENTS ACT - BALANCE OF PAYMENTS PROGRAM (MAY 198[illegible])
52.225-10	DUTY FREE ENTRY (APR 1984)
52.227-1	AUTHORIZATION AND CONSENT (APR 1984)
52.227-2	NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (APR 1984)

52.227-3	PATENT INDEMNITY (APR 1984)
52.227-14	RIGHTS IN DATA - GENERAL - ALTERNATE II (JUN 1987)
52.229-3	FEDERAL, STATE AND LOCAL TAXES (APR 1984)
52.229-5	TAXES - CONTRACTS PERFORMED IN U.S. POSSESSIONS OR PUERTO RICO (APR 1984)
52.230-3	COST ACCOUNTING STANDARDS (SEP 1987)
52.230-4	ADMINISTRATION OF ACCOUNTING STANDARD (SEP 1987)
52.232-1	PAYMENTS (APR 1984)
52.232-8	DISCOUNTS FOR PROMPT PAYMENT (JUL 1985)
52.232-16	PROGRESS PAYMENT (AUG 1987)
52.232-17	INTEREST (APR 1984)
52.232-23	ASSIGNMENT OF CLAIMS (JAN 1986)
52.232-25	PROMPT PAYMENT (FEB 1988)
52.233-1	DISPUTES, ALTERNATE I (APR 1984)
52.233-3	PROTEST AFTER AWARD (JUN 1985)
52.243-1	CHANGES-FIXED PRICE (AUG 1987)
52.243-6	CHANGE ORDER ACCOUNTING (APR 1984)
52.243-7	NOTIFICATION OF CHANGES (APR 1984)
52.244-1	SUBCONTRACTS UNDER FIXED-PRICE CONTRACTS (JAN 1986)
52.244-5	COMPETITION IN SUBCONTRACTING (APR 1984)
52.245-2	GOVERNMENT PROPERTY (FIXED-PRICE CONTRACTS) (APR 1984)
52.245-17	SPECIAL TOOLING (APR 1984)
52.245-18	SPECIAL TEST EQUIPMENT (APR 1984)
52.245-19	GOVERNMENT FURNISHED PROPERTY "AS IS" ALTERNATE I (APR 1984)
52.246-2	INSPECTION OF SUPPLIES - FIXED PRICE ALTERNATE I (JUL 1985)
52.246-4	INSPECTION OF SERVICES - FIXED PRICE (APR 1984)

52.246-16	RESPONSIBILITY FOR SUPPLIES (APR 1984)
52.246-24	LIMITATION OF LIABILITY HIGH VALUE ITEMS (APR 1984)
52.246-25	LIMITATION OF LIABILITY - SERVICES (APR 1984)
52.247-29	F.O.B. ORIGIN (APR 1984)
52.247-30	F.O.B. ORIGIN, CONTRACTOR'S FACILITY (APR 1984)
52.247-63	PREFERENCE FOR U.S. FLAG AIR CARRIERS (APR 1984)
52.248-1	VALUE ENGINEERING (APR 1984)
52.249-2	TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED PRICE) (APR 1984)
52.249-8	DEFAULT (FIXED-PRICE SUPPLY AND SERVICE) (APR 1984)
52.250-1	INDEMNIFICATION UNDER PUBLIC LAW 85-804 (APR 1984)

I.2 52.252-2 CLAUSES INCORPORATED BY REFERENCE (APR 1984)

(Cost Reimbursement)

This Contract incorporates the following Clauses by reference with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. These Clauses apply to the Cost Reimbursement Line Items only.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

52.202-1	DEFINITIONS (APR 1984)
52.203-1	OFFICIALS NOT TO BENEFIT (APR 1984)
52.203-3	GRATUITIES (APR 1984)
52.203-5	COVENANT AGAINST CONTINGENT FEES (APR 1984)
52.203-6	RESTRICTION ON SUBCONTRACTOR SALES TO THE GOVERNMENT (JUL 1985)
52.203-7	ANTI-KICKBACK PROCEDURES (FEB 1987)
52.204-2	SECURITY REQUIREMENTS (APR 1984)
52.208-1	REQUIRED SOURCES FOR JEWEL BEARINGS AND RELATED ITEMS (APR 1984)
52.210-5	NEW MATERIAL (APR 1984)

52.210-7	USED OR RECONDITIONED MATERIAL, RESIDUAL INVENTORY, AND FORMER GOVERNMENT SURPLUS PROPERTY (APR 1984)
52.212-8	DEFENSE PRIORITY ALLOCATION REQUIREMENTS (MAY 1986)
52.212-13	STOP WORK ORDER - ALTERNATE I (APR 1984)
52.215-1	EXAMINATION OF RECORDS BY CONTROLLER GENERAL (APR 1984)
52.215-2	AUDIT - NEGOTIATION (APR 1984)
52.215-21	CHANGES OR ADDITIONS TO MAKE-OR-BUY PROGRAM (APR 1984) ALTERNATE II
52.215.22	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA (APR 1984)
52.215-23	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA MODIFICATIONS (APR 1985)
52.215-24	SUBCONTRACTOR COST OR PRICING DATA (APR 1985)
52.215-25	SUBCONTRACTOR COST OR PRICING DATA MODIFICATIONS (APR 1985)
52.215-30	FACILITIES CAPITAL COST OF MONEY (SEP 1987)
52.216-7	ALLOWABLE COST AND PAYMENT (APR 1984)
52.216-10	INCENTIVE FEE (APR 1984)
52.219-8	UTILIZATION OF SMALL BUSINESS CONCERNS AND SMALL DISADVANTAGED BUSINESS CONCERNS (JUN 1985)
52.219-9	SMALL BUSINESS CONCERNS AND SMALL DISADVANTAGED SUBCONTRACTING PLANS (APR 1984)
52.219-13	UTILIZATION OF WOMEN-OWNED SMALL BUSINESS (AUG 1986)
52.220-1	PREFERENCE OF LABOR SURPLUS AREA CONCERNS (APR 1984)
52.220-3	UTILIZATION OF LABOR SURPLUS AREA CONCERNS (APR 1984)
52.220-4	LABOR SURPLUS AREA SUBCONTRACTING PROGRAM (APR 1984)
52.222-1	NOTICE TO THE GOVERNMENT OF LABOR DISPUTES (APR 1984)
52.222-2	PAYMENTS FOR OVERTIME PREMIUMS (APR 1984)
52.222-3	CONVICT LABOR (APR 1984)
52.222-26	EQUAL OPPORTUNITY (APR 1984)
52.222-28	EQUAL OPPORTUNITY PREAWARD CLEARANCE OF SUBCONTRACTS (APR 1984)

52.222-35	AFFIRMATIVE ACTION FOR SPECIAL DISABLED AND VIETNAM ERA VETERANS (APR 1984)
52.222-36	AFFIRMATIVE ACTION FOR HANDICAPPED WORKERS (APR 1984)
52.223-2	CLEAN AIR AND WATER (APR 1984)
52.225-3	BUY AMERICAN ACT - SUPPLIES (APR 1984)
52.225-10	DUTY FREE ENTRY (APR 1984)
52.227-1	AUTHORIZATION AND CONSENT (APR 1984)
52.227-2	NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (APR 1984)
52.227-3	PATENT INDEMNITY (APR 1984)
52.230-3	COST ACCOUNTING STANDARDS (SEP 1987)
52.230-4	ADMINISTRATION OF ACCOUNTING STANDARD (SEP 1987)
52.230-5	DISCLOSURE AND CONSISTENCY OF COST ACCOUNTING PRACTICES (SEP 1987)
52.230-6	CONSISTENCY IN COST ACCOUNTING PRACTICES (SEP 1987)
52.232-17	INTEREST (APR 1984)
52.232-20	LIMITATION OF COST (APR 1984)
52.232-22	LIMITATION OF FUNDS (APR 1984)
52.232-25	PROMPT PAYMENT ALTERNATE II (FEB 1988)
52.233-1	DISPUTES. ALTERNATE I (APR 1984)
52.243-2	CHANGES COST REIMBURSEMENT. ALTERNATE II (APR 1984)
52.243-6	CHANGE ORDER ACCOUNTING (APR 1984)
52.243-7	NOTIFICATION OF CHANGES (APR 1984)
52.244-2	SUBCONTRACTS (COST REIMBURSEMENT AND LETTER CONTRACTS) (JUL 1985)
52.244-5	COMPETITION IN SUBCONTRACTING (APR 1984)
52.245-5	GOVERNMENT PROPERTY (COST REIMBURSEMENT CONTRACTS (JAN 1986)
52.245-18	SPECIAL TEST EQUIPMENT (APR 1984)
52.245-19	GOVERNMENT FURNISHED PROPERTY "AS IS" ALTERNATE I (APR 1984)

52.246-3	INSPECTION OF SUPPLIES - COST REIMBURSEMENT (APR 1984)
52.246-5	INSPECTION OF SERVICES - COST REIMBURSEMENT (APR 1984)
52.246-24	LIMITATION OF LIABILITY HIGH VALUE ITEMS (APR 1984)
52.247-29	F.O.B. ORIGIN (APR 1984)
52.247-30	F.O.B. ORIGIN, CONTRACTOR'S FACILITY (APR 1984)
52.248-1	VALUE ENGINEERING (APR 1984)
52.249-6	TERMINATION (COST REIMBURSEMENT) (MAY 1986)
52.249-14	EXCUSABLE DELAYS (APR 1984)
52.250-1	INDEMNIFICATION UNDER PUBLIC LAW 85-804 (APR 1984)

1.3 Clarifications

The following clarifications apply to the FAR Clauses incorporated by refernce in this contract.

FAR 52.208-1 Required Sources for Jewel Bearings and Related Items (April 1984) - This clause is not applicable to IBM's ADP products in accordance with FAR 8.203-1.

FAR 52.210-5 New Material (April 1984) - For the IBM commercial products, IBM shall deliver newly manufactured equipment as long as such equipment is generally available from IBM as newly manufactured. In the event that other than newly manufactured equipment is delivered, such equipment shall be equivalent to newly manufactured equipment in performance and warranted the same as newly manufactured equipment. The Contracting Officer shall be notified when other than newly manufactured equipment is delivered.

FAR 52.215-2 Audit/Negotiation (April 1984) - Under this contract it is recognized that the Government has no right to audit the books and records associated with the IBM commercial products or services (except for the Examination of Records Clause) nor shall any cost data be provided for commercial products or services.

FAR 52.215-22 Price Reduction for Defective Cost or Pricing Data (April 1984) and FAR 52.215-23 Price Reduction for Defective Cost or Pricing Data Modifications (April 1985) - In accordance with FAR 15.804-3, IBM is exempt from the requirement for submission of certified cost or pricing data for IBM commercial products or services, because the prices for such items are, or are based on, established catalog or established market prices of commercial items sold in substantial quantities to the general public. Therefore, FAR 52.215-22 will not apply to commercial items in the base contract or the priced options.

FAR 52.215-26 Integrity of Unit Prices Alternate I (April 1987) - This clause is not applicable to the portion of this proposal involving the sale of IBM commercial products or services.

FAR 52.219-9 Small Business and Small Disadvantaged Business Subcontracting Plan (April 1984) - The General Services Administration has approved IBM's company-wide subcontracting plan for commercial products and services. In accordance with FAR 52.219-9(g), such plan meets the Government's requirements for a commercial product offering.

FAR 52.227.14 Rights in Data - General - Alternate II (July 1987) - IBM commercial data is delivered as limited rights data and is exempted from the requirements of FAR 52.227-14, paragraph (c)(2). Notwithstanding, the Government may reproduce for incidental internal FAA uses up to 10% of any copyrighted document with no waiver of copyright rights. IBM commercial data normally provided in machine readable form is not subject to this reproduction restriction.

Commercial IBM licensed software is supplied on a "restricted computer software" basis, subject to the terms and conditions of Special Items 132-30, Licensed Program, of the IBM/GSA ADP Schedule Contract No. GS00K88AGS5927, excluding Section 5-A (FLPP) or Special Item 132-33, Licensed Programs for IBM Micro Computers, of the IBM/GSA Schedule Contract No. GS00K87AGS6062, as appropriate.

FAR 52.229-3 Federal, State and Local Taxes (April 1984) - IBM's contract price do not include state and/or local sales tax. Such tax, if requried to be charged, will be included on IBM' invoice to the Government. The Government agrees to either pay IBM such tax or provide evidence appropriate to sustain an exemption from payment.

FAR 52.230-3 Cost Accounting Standards (September 1987) - In accordance with FAR 30.301(b)(6), the IBM commercial products and services offered in this contract are exempt from Cost Accounting Standards because prices are, or are based on, established catalog or established market price of commercial items sold in substantial quantities to the general public.

PART III - SECTION J

LIST OF ATTACHMENTS

J.1 LIST OF ATTACHMENTS

ATTACHMENT	TITLE
J-1	Statement of Work (SOW), FAA-SOW-240-002
J-2	System Level Specification (SLS), FAA-ER-130-005H-AP
J-3	Contract Data Requirements List (CDRL), FAA-CDRL-240-002, and Data Item Descriptions (DIDs), FAA-DID-240-002
J-4	Government Furnished Property (GFP).FAA-GFP-130-002
J-5	Preliminary Contract Work Breakdown Structure (CWBS), FAA-CWBS-AAP-002
J-6	Transition Concepts and Requirements (TRO), FAA-TRO-AAP-003

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